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U. S. Reviews Chinese Communist Aggressive Actions in Taiwan Straits Area

Following is the text of a statement made by Secretary Dulles on the authority of the President which was released by the White House at Newport, R.I., on September 4, together with a White House statement which was released at Washington, D.C., on September 6 following a meeting of President Eisenhower with members of the National Security Council and other Government officials.

STATEMENT BY SECRETARY DULLES

White House (Newport, R. I.) press release dated September 4

I have reviewed in detail with the President the serious situation which has resulted from aggressive Chinese Communist military actions in the Taiwan (Formosa) Straits area. The President has authorized me to make the following statement.

1. Neither Taiwan (Formosa) nor the islands of Quemoy and Matsu have ever been under the authority of the Chinese Communists. Since the end of the Second World War, a period of over 13 years, they have continuously been under the authority of Free China, that is, the Republic of China.

2. The United States is bound by treaty to help to defend Taiwan (Formosa) from armed attack and the President is authorized by Joint Resolution of the Congress to employ the armed forces of the United States for the securing and protecting of related positions such as Quemoy and Matsu.[1]

3. Any attempt on the part of the Chinese Communists now to seize these positions or any of them would be a crude violation of the principles upon which world order is based, namely, that no country should use armed force to seize new territory.

4. The Chinese Communists have, for about 2 weeks, been subjecting Quemoy to heavy artillery bombardment and, by artillery fire and use of small naval craft, they have been harassing the regular supply of the civilian and military population of the Quemoys, which totals some 125 thousand persons. The official Peiping radio repeatedly announces the purpose of these military operations to be to take by armed force Taiwan (Formosa), as well as Quemoy and Matsu.[2] In virtually every Peiping broadcast Taiwan (Formosa) and the offshore islands are linked as the objective of what is called the "Chinese Peoples Liberation Army."

5. Despite, however, what the Chinese Communists say, and so far have done, it is not yet certain that their purpose is in fact to make an all-out effort to conquer by force Taiwan (Formosa) and the offshore islands. Neither is it apparent that such efforts as are being made, or may be made, cannot be contained by the courageous, and purely defensive, efforts of the forces of the Republic of China, with such substantial logistical support as the United States is providing.

6. The Joint Resolution of Congress, above referred to, includes a finding to the effect that "the secure possession by friendly governments of the Western Pacific Island chain, of which Formosa is a part, is essential to the vital interests of the United States and all friendly nations in and bordering upon the Pacific Ocean". It further authorizes the President to employ the Armed Forces of the United States for the protection not only of Formosa but for "the securing and protection of such related positions and territories of that area now in friendly hands and the taking of such other measures as he judges to be required or appropriate in assuring the defense of Formosa". In view of the situation outlined in the preceding

[1] For text of H. J. Res. 159, 84th Cong., 1st. sess., see BULLETIN of Feb. 7, 1955, p. 213.

[2] For a Department statement regarding the broadcasts, see *ibid.*, Sept. 15, 1958, p. 415.

paragraph, the President has not yet made any finding under that Resolution that the employment of the Armed Forces of the United States is required or appropriate in insuring the defense of Formosa. The President would not, however, hesitate to make such a finding if he judged that the circumstances made this necessary to accomplish the purposes of the Joint Resolution. In this connection, we have recognized that the securing and protecting of Quemoy and Matsu have increasingly become related to the defense of Taiwan (Formosa). This is indeed also recognized by the Chinese Communists. Military dispositions have been made by the United States so that a Presidential determination, if made, would be followed by action both timely and effective.

7. The President and I earnestly hope that the Chinese Communist regime will not again, as in the case of Korea, defy the basic principle upon which world order depends, namely, that armed force should not be used to achieve territorial ambitions. Any such naked use of force would pose an issue far transcending the offshore islands and even the security of Taiwan (Formosa). It would forecast a widespread use of force in the Far East which would endanger vital free world positions and the security of the United States. Acquiescence therein would threaten peace everywhere. We believe that the civilized world community will never condone overt military conquest as a legitimate instrument of policy.

8. The United States has not, however, abandoned hope that Peiping will stop short of defying the will of mankind for peace. This would not require it to abandon its claims, however ill-founded we may deem them to be. I recall that in the extended negotiations which the representatives of the United States and Chinese Communist regime conducted at Geneva between 1955 and 1958, a sustained effort was made by the United States to secure, with particular reference to the Taiwan area, a declaration of mutual and reciprocal renunciation of force, except in self-defense, which, however, would be without prejudice to the pursuit of policies by peaceful means. The Chinese Communists rejected any such declaration. We believe, however, that such a course of conduct constitutes the only civilized and acceptable procedure. The United States intends to follow that course, so far as it is concerned, unless and until the Chinese Communists, by their acts, leave us no choice but to react in defense of the principles to which all peace-loving governments are dedicated.

WHITE HOUSE STATEMENT

White House press release dated September 6

The President discussed the Taiwan Straits situation with the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, and the Chairman of the Joint Chiefs of Staff—members of the National Security Council. Also present were the Director of the United States Information Agency, the Director of the Office of Civil and Defense Mobilization, and the Acting Director of the Central Intelligence Agency. The Vice President, because of a long-standing out of town engagement, was unable to be present.

Consideration was given to measures which would conform to the policy enunciated on September 4 by the Secretary of State on the authority of the President. But particular note was taken of the reported radio statement of Mr. Chou En-lai indicating that the Chinese Communists were prepared to resume ambassadorial talks with the United States "in order to contribute further to the safeguarding of peace." These talks, which had been conducted in Europe for several years, were recently interrupted by the Chinese Communists.

So far the United States has not received any official word on this subject. We hope, however, that the reported statement of Mr. Chou En-lai is responsive to the urging, contained in our September 4 policy statement, that "armed force should not be used to achieve territorial ambitions," although such renunciation of force need not involve renouncing claims or the pursuit of policies by peaceful means. This is the course that the United States will resolutely pursue in conforming with our vital interests, our treaty obligations, and the principles on which world order is based.

The United States has sought to implement that policy in its past talks at the ambassadorial level with the Chinese Communists. On July 28, 1958, and subsequently, we have sought a resumption of these talks.

If the Chinese Communists are now prepared to respond, the United States welcomes that de-

cision. The United States Ambassador at Warsaw stands ready promptly to meet with the Chinese Communist Ambassador there, who has previously acted in this matter.

Naturally, in these resumed talks the United States will adhere to the negotiating position which it originally took in 1955, namely, that we will not in these talks be a party to any arrangement which would prejudice the rights of our ally, the Republic of China.

Fourth Anniversary of SEATO

Following is the text of a statement by President Eisenhower in connection with the fourth anniversary of the Southeast Asia Treaty Organization which was released by the White House at Newport, R.I., on September 7, together with the text of remarks made by Secretary Dulles which were recorded for radio and television presentation on September 7.

STATEMENT BY PRESIDENT EISENHOWER

White House (Newport, R. I.) press release dated September 7

September 8th marks the fourth anniversary of the signing of the Manila Pact. Four years ago, the United States joined with Australia, France, New Zealand, Pakistan, the Philippines, Thailand, and the United Kingdom to form the South East Asia Treaty Organization.

The experience of the United States in the South East Asia Treaty Organization reaffirms our belief that an international organization of free peoples, conceived in accordance with the principles of the United Nations Charter, provides a firm basis for common action to maintain peace and security.

Since 1954, the United States has participated in the continuing growth of cooperation among the member nations which has provided the conditions of stability indispensable to political, economic and social progress in South East Asia.

I am convinced that our cooperative efforts will continue to be successful. In the face of an undiminished challenge, the South East Asia Treaty Organization will vigorously maintain the protective shield necessary to the preservation of our common heritage of freedom.

REMARKS BY SECRETARY DULLES

Press release 512 dated September 5

SEATO has stood for 4 years as a barrier against aggression in Southeast Asia. It continues to serve that need.

International communism has not relaxed its threat to peace and stability in the treaty area. It employs a variety of tactics to promote its expansionist ambitions. These include economic warfare, infiltration, subversion, and the threat of force. Recent events in the Taiwan area clearly demonstrate that the Chinese Communists have not renounced the use of force to serve their expansionist goals.

As against these dangers, SEATO has developed cooperative military arrangements. These are of a purely defensive character. Under the shield of this protection, member nations have successfully pursued cooperative programs of mutual economic aid, technical assistance, and cultural exchange.

Ceremonies are being held in Bangkok today to celebrate SEATO's fourth anniversary. To our friends assembled there, I send greetings on behalf of the Government of the United States. I should also like to say that our countrymen are proud to share in this partnership which seeks to fulfill the hopes common to all of our peoples. I am convinced that SEATO will continue resolutely to preserve our common heritage of freedom.

Japanese Foreign Minister To Visit Washington

The Department of State announced on September 5 (press release 514) that Japanese Foreign Minister Aiichiro Fujiyama will arrive at Washington on September 10 for an informal visit. Mr. Fujiyama will remain in Washington until September 13 or 14 when he will proceed to New York to attend the opening of the 13th General Assembly of the United Nations.

Mr. Fujiyama will confer with Secretary Dulles and State Department officials on matters of mutual interest to the United States and Japan. Arrangements have been made for conferences between Mr. Fujiyama and the Secretary on September 11 and 12. While no formal agenda for

their discussions has been agreed upon, it is expected that their talks will include but not be limited to a review of the international situation including Communist China, U. S.–Japan security arrangements, and economic matters of mutual interest.

The United Nations and American Ideals

by Henry Cabot Lodge
U.S. Representative to the United Nations[1]

Thank you for this chance to address you as the representative of the President of the United States. He has given me a message which I would like to read to you now:

I notice that happily you are going to address the Delegates attending the 40th Convention of the American Legion in Chicago. In addition to the address the Secretary of Defense will make in the evening and the message he will deliver from me, a report of your work in the United Nations will be of great interest to the Delegates. You will voice, I know, my own deep interest in it.

I know the Delegates to this Convention will recognize the devotion that has attended the work of you and your associates; and they, in turn, will strive for a broader understanding among all our people of the significance of the objectives we seek to achieve. Since the success of your work is of such vast importance to all of us, I know that your remarks could not find a more interested and concerned audience than the American Legion.

As veterans of the wars of our land, each war having been fought outside the borders of our nation, they will understand, I am sure, the importance I attach to the United Nations effort for peace.

Will you kindly convey once again to the Delegates my belief in the large contribution they can make to the success of this work, particularly in the knowledge so many of them have that the peace and security of our nation is inseparable from that of other lands.

DWIGHT D. EISENHOWER

The Legion has many noble purposes which are particularly timely today. Let me read some of them:

to uphold and defend the Constitution of the United States of America;

to inculcate a sense of individual obligation to the community;

to promote peace and goodwill on earth;

to safeguard and transmit to posterity the principles of justice, freedom and democracy.

These are all great purposes. They are as precious and as necessary today as they were when they were written in Paris at the first meeting of the American Legion 40 years ago. Animated by these purposes, the Legion has grown to a membership of more than 2,800,000 with more than 17,000 posts and has achieved a record, notably as regards national defense and veterans affairs, which stands as a great tribute to its influence.

These purposes are also a source of strength to the United States. Then, because the United States is the indispensable champion of freedom in the world, these purposes of the American Legion are a source of strength to every man in every country who values his freedom.

Your purposes symbolize what is noblest in America. They make us think of our heroic days. They symbolize the sacrifice of World War I, of World War II, and of Korea; and through the prism of unselfishness and sacrifice, they portray America as she should be portrayed—as a nation of humane ideals.

"A Nation of Humane Ideals"

And in spite of a systematic and deliberate campaign of vilification by Soviet communism without precedent in world history, the United States is still thought of as a nation of humane ideals. Working in the world forum of the United Nations, I know that even those who speak against us recognize at heart that all that we want is what is best for humanity.

We live in a world which needs the ideals of the American Legion.

Just consider the issues the United States confronted all over the globe in just the years that I

[1] Address made before the 40th convention of the American Legion at Chicago, Ill., on Sept. 2 (U.S./U.N. press release 2986).

have been United States Representative at the United Nations. Here is a short and by no means complete list:

The end of the struggle in Korea—a struggle which stopped the attempts of Communist imperialism to take over that country.

The effort in 1954 by Soviet communism to take over Guatemala and then to spread through Central America.

The dangers inherent in the dispute between Italy and Yugoslavia over the Port of Trieste—a dispute which, we can be thankful to say, is at an end.

The conclusion of the Austrian treaty, which led to the withdrawal of troops from Austria.

The illegal detention by the Chinese Communists of our United States Air Force flyers who finally were released, thanks to the United Nations and to the efforts of the Secretary-General.

And the struggle never stops. On more than 30 occasions already we have been successful in keeping Communist China out of the United Nations, and the attempt will undoubtedly be made again in the next few weeks—and we will undoubtedly deal with it successfully.

Looking for a moment at the internal setup of the United Nations, it is good to be able to report to the American Legion, which takes such an active part in the struggle against communism, that every single American employed by the United Nations has been screened in accordance with procedures prescribed by the FBI and the United States Civil Service Commission—for the good and sufficient reason that, when there are so many patriotic Americans from which to choose, there is no excuse whatever for employing one single American Communist.

In 1956, as you all know, came the Suez crisis, and as a result of action in the United Nations the United Nations Emergency Force is in the Gaza Strip and at the entrance to the Gulf of Aqaba today, and these two hitherto dangerous places are more peaceful than they have been for a long time.

We also faced the brutal Soviet onslaught against Hungary which, alas, the free world was unable to prevent. But the United Nations debate exposed its full horror and, by so doing, has kept the pressure of world opinion on the Soviet Union. The whole of human history teaches us that no people can be oppressed indefinitely, and I am sure that one day we will see a free and independent Hungary and that we must not lose hope.

Events in the Near East

Then came the events of this summer in the Near East—events which led the Government of Lebanon to request President Eisenhower for United States troops to help preserve the independence and the integrity of that country.

President Eisenhower responded to the call,[2] and on instructions from him I immediately requested a meeting of the Security Council on July 15, saying that the presence of our troops in Lebanon was to stabilize the situation "until such time as the United Nations could take the steps necessary to protect the independence and political integrity of Lebanon."

We asked the Security Council to cope with the situation.[3] When the action proposed was vetoed by the Soviet Union, we supported a Japanese resolution along the same lines. This, too, was vetoed. And then we secured adoption of our resolution to bring the whole matter into the General Assembly where all the nations of the world—large and small—are represented and where there is no veto.

During this debate which went all through the summer, speaking as the United States Representative, I said that:

> . . . All nations, large and small alike, are entitled to have their political independence and territorial integrity respected and maintained. If we vacillate with regard to this proposition, we will open the floodgates to direct and indirect aggression all over the world.
>
> The overthrow of another state by subversion and the fomenting of internal strife is more difficult for the world to combat than is directed military aggression because the fomenting of internal strife is harder to see with your eyes.

We were, to be sure, opposed at every turn by the representative of the Soviet Union, who was arguing in effect that it was wrong for small countries to be able to ask for and to receive help. They attacked us for helping small countries when, of their own free will, these countries asked us to do so. This is a handy argument for a big country which wants to take little countries over against their will.

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[2] BULLETIN of Aug. 4, 1958, p. 181.

[3] For background, see *ibid.*, p. 186.

The Soviet representative also attacked the United States for doing things which we had not done but which they often do themselves. This appears to be a standard Soviet practice. According to them we were the warmongers, we were the imperialists.

Here was the government most often defeated in the United Nations operating on the maxim of the old political boss who says: "Claim everything; concede nothing; and, if defeated, allege fraud."

Here was the man in the parade who cannot ever keep step exclaiming: "Everybody is out of step but me."

In the debate on the Near East we challenged the Soviet Union to stop jamming radio broadcasts so that the people in Russia could hear what Soviet spokesmen said at the General Assembly and what others said in reply. But this was spurned; in fact the Soviets even jammed the broadcast of their own Foreign Minister's speech.

The final result of the United Nations consideration of the Near East question came, as you know, about 10 days ago when, instead of denouncing the United States or calling upon us to withdraw, or doing any of the things which the Soviet Union wanted, the United Nations adopted a resolution which embodies the kind of thing which we think should be done in the Near East.[4] It contained a pledge of noninterference, and it in effect put the United Nations in Lebanon and Jordan. Both of these provisions, therefore, if lived up to, would make possible our withdrawal. Finally, and of great importance for the future, the resolution approved a long-range scheme for regional economic development along the lines proposed by President Eisenhower.[5]

To be sure, resolutions are but words and, if they are to be considered successful, they must be carried out in practice. But the resolution just adopted in New York was a constructive document, and it represented not only a defeat for the efforts of the Soviet Union to condemn the United States but was also gratifying evidence of the way in which the nations in a troubled part of the world can go ahead on their own to reduce tensions.

If I may utter a personal view, it is that we accomplished more at this special session of the General Assembly than would have been accomplished at the type of unprepared and hastily convened summit meeting which Mr. Khrushchev favored—and then hastily dropped after his visit to Peking. Our correspondence with the Soviet Union on this matter showed that the Soviets had no sincere concern for the desires of the small countries of the Near East but were only looking for a chance to make trouble.

Yet it was because the Arab countries got together and in effect agreed to keep their own house in order that we made a forward step. Perhaps this will persuade Mr. Khrushchev in the future to give up his attempts to exclude small countries from the problems which affect them so closely. This is said seriously and sincerely by one who believes that the Soviet Union's present attitude about the United States will—if we do not get discouraged—eventually change.

In fact, when we consider the possibility that the Soviet attitude may change, we can do well to take note of a recently published dispatch about Prime Minister Nehru of India's statement that communism "ignores certain essential needs of human nature" and eventually will be overthrown. He reportedly said that communism's "unfortunate association with violence encourages a certain evil tendency in human beings"—and the world now has come to the point where any attempt to impose ideas by force is bound to fail.

These thoughts of Prime Minister Nehru are of good augury for the future.

Exploration of Outer Space

Our future, in any event, is sure to be influenced by the current advances of science—and one of the most challenging new frontiers opened up by this advance is the vastness of outer space. The universe through which our world travels each day has no national boundaries. The scientists of the world have much to contribute to the peaceful exploration of outer space. All of us have much to lose if outer space is subjected to national rivalries. If nations can successfully cooperate in the study and exploration of outer space, new and brighter horizons may be opened up for all humanity.

It is good, therefore, to be able for the first time to announce here at the national convention of the

[4] For text, see *ibid.*, Sept. 15, 1958, p. 411.
[5] *Ibid.*, Sept. 1, 1958, p. 337.

American Legion that President Eisenhower has instructed me to include the important and urgent subject of outer space at the next regular session of the General Assembly which meets in a few weeks. Specifically, the United States will propose a program for international cooperation in the field of outer space.

No matter what happens, study and exploration of outer space will go on and will take man where no human being has gone before. This will affect every man, woman, and child in the world—and can be to their great benefit.

Our new space knowledge can be applied to medicine, communications, transportation, and many other useful fields, including even our knowledge of the weather.

Progress in this field would be faster, cheaper, and more efficient if all the nations concerned agreed to work together.

Some practical program for international cooperation in the scientific and peaceful study and exploration of outer space must be set up.

We will continue our efforts to reach agreements, consistent with our national security, which will increase the prospects that outer space will not be used for military purposes. But even as we work for such agreements, an important start must be made now in opening this new realm for the benefit of all mankind.

The United Nations, therefore, should immediately consider what it can do in this field, what outer space projects for peaceful purposes can be undertaken under United Nations auspices, and what sort of organization the United Nations can build so that the nations will work together in outer space.

The United States wants to see outer space used so as to enrich the lives of all people who live on this planet. We trust that our proposal will get the support of other nations and that, together, we can move forward toward this goal with the courage and vision of our early pioneers.

Struggle for the Minds of Men

We must not get discouraged about the future. The Soviet Communists today believe in a doctrine which is not peace and not war and which they have themselves described as "protracted conflict." We must accordingly be able to think of this struggle in terms of generations—a struggle which will span many elections, many fiscal years, and many national conventions.

The Soviet Union is a big power, and so are we. But the struggle in which we are engaged is no mere power struggle. For there is one element in the struggle which we *have* and which the Soviets have *not*. It is the element to which I referred at the beginning of this speech. It is the strength of our ideals—ideals for which the American Legion also stands.

From our Founding Fathers there have come down to us ideals which proclaim the dignity of man and the value and sanctity of the individual. The difference between our way of life and that of communism which has particularly vivid meaning for people in Asia, Africa, and in every corner of the globe is our proposition proven by 180 years of actual experience: that man *can* improve his material and physical lot without sacrificing his civil rights. In fact, while his material lot improves, his freedom, his ability to think and to act for himself, to develop his personality—in the words of the Declaration of Independence, to pursue his happiness—all these things are enhanced.

There are, to be sure, many other differences which are apparent to us here in America. But the fact that we stand for material progress without sacrifice of freedom has particular meaning abroad.

One basic element in our way of thinking, therefore, is the right of every people in its internal affairs to live its own life in its own way. As President Eisenhower said to the United Nations on August 13:

> This world of individual nations is not going to be controlled by any one power or group of powers. This world is not going to be committed to any one ideology. . . . the dream of world domination by one power or of world conformity is an impossible dream.

Comrade Commander and fellow Legionnaires, let us in conclusion remember this: We must be strong in our military might, strong in the vitality of our economic life, strong in our national unity, and strong in the vigor and skill of our diplomacy.

But underlying all these things is the struggle for the minds of men. We will win the struggle for the minds of men insofar as we make a reality, at home and abroad, of our humane ideals. In this, as in everything which pertains to the welfare of our country, the American Legion can and will make a priceless contribution.

East-West Technical Experts Conclude Talks at Geneva

Technical experts representing Canada, France, the United Kingdom, and the United States, on the Western side, and the Czechoslovak Republic, the Polish People's Republic, the People's Republic of Rumania, and the Union of Soviet Socialist Republics, on the Soviet side, met at Geneva July 1–August 21 to study methods of detecting violations of a possible agreement on the suspension of nuclear tests. Following is a statement made by James B. Fisk, chairman of the Western panel, at the conclusion of the conference on August 21, the text of a communique released at Geneva on that date, and the text of the final report which was adopted by the conference of experts and made public on August 30.

STATEMENT BY DR. FISK

I have a short concluding statement which I would like to give to the meeting.

The Conference of Experts has completed its work. We on the Western side are gratified that the task set for this Conference, which began its work seven weeks ago, has been successfully accomplished.

That task was to seek a common understanding of the technical problems involved in the detection and identification of nuclear explosions. We have now reached such a common understanding, which is embodied in the report we have just agreed upon, and which we are now transmitting to our Governments. My colleagues and I are hopeful that this report, which carefully examines and sets forth the capabilities and limitations of present methods of detecting nuclear explosions, will prove helpful to all of our Governments in their future consideration of this important subject.

As scientists we have sought here to establish the facts pertinent to our subject and to draw from them sound and logical conclusions regarding a system of control. We have heard a large number of scientific presentations from many members of the Conference, and we have asked many questions in order to understand and criticise the scientific accuracy of the matters being discussed. We have worked together in writing conclusions on each part of our work as it was completed, and on the final report, seeking thereby to present to governments the scientific facts and the significant measure of agreement that we have been able to reach on a system of control.

I speak for all those on the Western side when I express our satisfaction at the friendly and cooperative working relationships which we have enjoyed with our colleagues on the other side of the table.

In closing I am anxious to express our warm appreciation and thanks to Ambassador [Pier] Spinelli [of the United Nations office in Geneva], and to the personal representative of the Secretary General, Mr. [T. G.] Narayanan, for his good offices, and to Miss [Constance] Rhodes, Mr. [Henri A.] Cornil and the rest of the Secretariat of the United Nations who have assisted the Conference for the efficient services which they have rendered us over these weeks. In particular, we have often given our interpreters a hard time, and we are grateful for their patience and for their skill.

We are likewise grateful to the Confederation of Switzerland and to the Cantonal authorities of Geneva for permitting this Conference to be held in such lovely and undisturbed surroundings.

COMMUNIQUE

The Conference of Experts to Study the Possibility of Detecting Violations of a Possible Agreement on the Suspension of Nuclear Tests, which began its work in the Palais des Nations at Geneva on 1 July, concluded its work on 21 August, 1958.

The Conference expressed its appreciation of the good offices of the Secretary-General of the United Nations, carried out through his personal representative, Mr. Narayanan, and of the efficient services rendered by the United Nations Secretariat attached to the Conference.

In the course of the work of the Conference there was an exchange of opinions on the question of the various methods of detecting nuclear explosions. The Conference came to the conclusion that the methods of detecting nuclear explosions available at the present time—namely, the collection of samples of radioactive debris, the recording of seismic, acoustic and hydro-acoustic waves, and the radio signal method, together with the use of onsite inspection of unidentified events which might be suspected of being nuclear explosions—make it possible, within certain specific limits, to detect and identify nuclear explosions, and it recommends the use of these methods in a control system.

The Conference noted that the combined use of the various methods considerably facilitates detection and identification of nuclear explosions.

The Conference noted that the effectiveness of the methods considerably increases in the course of time, with improvement of measuring techniques and with study of the characteristics of natural phenomena which cause interference when explosions are detected.

The Conference adopted an agreed conclusion regarding the technical equipment of the control system necessary for the detection and identification of nuclear explosions. The Conference reached the conclusion that it is technically feasible to set up, with certain capabilities and limitations, a workable and effective control system for the detection of violations of a possible agreement on the world-wide cessation of nuclear weapons tests. It was established in this connexion that a network of control posts equipped with all the necessary apparatus appropriate to the various methods of detection of nuclear explosions should be disposed on continents and on islands, as well as on a few ships in oceans.

The Conference came to the conclusion that the control system should be under the direction of an international control organ which would ensure the co-ordination of the activities of the control system and the functioning of the system in such a way that it would satisfy the necessary technical requirements.

On 21 August, 1958, the Conference of Experts adopted a final report for consideration by Governments. The report will be made public at a time to be determined by Governments.

TEXT OF REPORT

REPORT OF THE CONFERENCE OF EXPERTS TO STUDY THE POSSIBILITY OF DETECTING VIOLATIONS OF A POSSIBLE AGREEMENT ON THE SUSPENSION OF NUCLEAR TESTS

I. Introduction

A. In accordance with an agreement reached as a result of an exchange of letters between the Chairman of the Council of Ministers of the Union of Soviet Socialist Republics, N. S. Khrushchev, and the President of the United States of America, Dwight D. Eisenhower, regarding the calling of a conference of experts to study the possibility of detecting violations of a possible agreement on the suspension of nuclear tests,[1] there began on 1 July 1958, in Geneva, in the Palais des Nations, a conference of, on the one hand, experts from Western countries and, on the other hand, delegations of experts of the Union of Soviet Socialist Republics, the Polish People's Republic, the Czechoslovak Republic and the People's Republic of Romania.

B. The Secretary-General of the United Nations was represented at the Conference by his Personal Representative, Mr. T. G. Narayanan. Conference facilities and Secretariat services were provided by the United Nations. The Experts express their appreciation for the good offices of the Secretary-General and his Personal Representative, and for the services of the Secretariat staff attached to the Conference.

C. The agenda for the Conference, adopted on 4 July, included the following main questions:

1. Exchange of opinions on the problem of the various methods for detecting atomic explosions and on other general problems of the Conference deliberations.

2. Determination of a list of basic methods of systematic observations for phenomena indicative of an explosion.

3. A system for controlling the observance of an agreement on the cessation of nuclear tests.

4. Drawing up a report of experts to the governments of those countries represented at the Conference, with conclusions and suggestions regarding a system for controlling the observance of an agreement on the cessation of nuclear tests.

D. The Conference held 30 official sessions and completed its work on 21 August 1958. By prior agreement the Conference held its sessions in private.

E. The Conference of Experts considered the phenomena accompanying nuclear explosions set off under various conditions.

F. Some of these phenomena, namely the acoustic

[1] BULLETIN of May 19, 1958, p. 811; June 9, 1958, p. 939; and June 30, 1958, p. 1083.

waves occurring when there are explosions in air and in water, the seismic oscillations that occur when there are explosions on the ground, under the ground, and under water, the radio pulses that are produced when there are explosions in the atmosphere, and the optical and gamma radiation when propagated over long distances, serve to indicate explosions and to estimate their time and place.

G. When nuclear explosions occur in the atmosphere the radioactive debris which is formed mixes in the atmosphere, and is dispersed over great distances. If a nuclear explosion is set off in the ocean or in the earth's crust, the radioactive debris will remain concentrated close to the site of the explosion for a considerable time.

H. The sensitivity of modern physical, chemical and geophysical methods of measurement makes it possible to detect nuclear explosions by the indications described above at considerable distances, as hereafter described. Thus it is known that explosions of high yield which are set off on the surface of the earth and in the lower part of the atmosphere can be detected without difficulty at points of the globe which are very remote from the site of the explosion. On the other hand, explosions which are of low yield (a few kilotons) can be detected with good reliability given the present state of observational techniques only if there is a specially set up control system such as that suggested in Section IV of this report.

I. A basic difficulty in detecting and identifying small explosions arises because many natural phenomena (earthquakes, thunder storms and others) give signals which are similar to those produced by explosions, or which by their presence hinder the detection of the signals sought.

J. The discrimination of the signals of natural events from signals of explosions is aided by a careful analysis of the recorded data, taking into account readings obtained at several points. Those remaining unidentified events which could be suspected as being nuclear explosions might be resolved by inspection of the site.

K. The Conference of Experts has considered the methods of detecting nuclear explosions by the acoustic, hydroacoustic and seismic oscillations which they produce in the air, water, or in the earth's crust, and, also the detection of explosions by the electromagnetic oscillations which are propagated from them, and by the radioactive debris that the explosions cause.

L. The Conference has examined the effectiveness and limitations of each of these methods for the detection of nuclear explosions and it has agreed that the combined use of the various methods considerably facilitates the detection and identification of nuclear explosions.

M. After examining the separate methods, the Conference examined the question of the technical equipment of the control system necessary to detect and identify nuclear explosions, and, after that, it passed to the question of the control system as a whole.

N. As a result of the examination of these questions the Conference reached the conclusion that it is technically feasible to set up, with the capabilities and limitations indicated in Section IV of this report, a workable and effective control system for the detection of violations of an agreement on the worldwide cessation of nuclear weapons tests.

O. In the present report information is given about the various methods of detection and identification of nuclear explosions, about the technical equipment of a control system and about a control system as a whole. Copies of the individual documents containing the conclusions adopted by the Conference on each of the questions mentioned are attached to the present report. Verbatim records and working documents in the working languages of the Conference will follow as soon as they are available for attachment to the report.

II. Basic Methods for Detection and Identification of Nuclear Explosions

A. *Conclusions as to the applicability of the Method of Recording Acoustic Waves for the Detection of Nuclear Explosions.*

The Conference of Experts examined the process of propagation of the acoustic waves caused by nuclear explosions and the methods of recording these waves with the aim of determining the possibility of using them for detecting nuclear explosions.

1. When there are explosions in air, a strong air acoustic wave is formed which propagates over large distances. An indication of the amplitude of the air pressure wave is given by a formula which is approximately valid for a homogeneous atmosphere and according to which this amplitude is proportional to the cube root of the yield and inversely proportional to the distance. However, the amplitude of this acoustic wave is strongly dependent upon meteorological conditions and cannot be predicted accurately by a simple formula of such a kind. The observed amplitude in certain cases can be five times larger or smaller than that predicted by a formulation which includes only the energy release and the distance to detecting station.

2. Existing apparatus of special design can detect the air wave from a one kiloton explosion in the air above local background noise at relatively large distances.

The detection capability of a single station is strongly dependent upon the orientation of the propagation path to the station with respect to the upper winds. When the upper winds are mainly in one direction, a one kiloton explosion can be detected with a high degree of confidence downwind at a distance of 2,000 to 3,000 kilometres and upwind at a distance of 500 kilometres. When the upper winds are erratic and the average wind is small, such as frequently happens in the spring and fall, detection of a one kiloton explosion can be accomplished with a similar degree of confidence to a distance of approximately 1,300 kilometres independently of the direction. On the basis of the records from three stations, the location of the explosion can be determined with an accuracy of better than 100 kilometres.

3. The acoustic apparatus at control posts at the above distances from an explosion can detect explosions which occur between the surface and a height of 30 kilometres. A reasonable extrapolation of existing experience indicates that for explosions taking place up to an altitude of about 50 kilometres there should not be a great change in the detectability of the acoustic wave. Whether a substantial acoustic wave will be generated at higher alti-

tudes is not well known from direct experiment or from any theoretical considerations so far discussed. Deep underground and underwater explosions do not produce air waves sufficiently intense for detection purposes.

An underwater explosion in the oceans generates very strong underwater sound waves (hydroacoustic), which even in the case of small explosions can be detected at distances of about 10,000 kilometres.

4. Acoustic waves which resemble in certain cases the acoustic signals of nuclear explosions may be produced by natural events (primarily meteoric, volcanic or submarine disturbances). In such cases the identification of the event as natural or as a nuclear explosion must be based on a comparison of acoustic data with those obtained by aid of other methods.

5. It is noted that methods of recording of pressure waves may be further improved to increase the precision and the sensitivity, and to eliminate background noise and spurious signals.

B. *Conclusions as to the Applicability of the Method of Using Radioactive Debris for Detecting and Subsequently Identifying Nuclear Explosions.*

The Conference of Experts has studied the process of the dissemination of radioactive debris resulting from a nuclear explosion and has considered the collection of samples of radioactive debris and its analysis as one of the methods for detecting and subsequently identifying nuclear explosions.

1. When an explosion occurs a considerable quantity of radioactive debris is produced. If the explosion is based on a fission reaction then this quantity amounts to 3×10^9 curies per 1 kt TNT equivalent of the energy of the explosion as of one hour after the reaction. Thermonuclear reactions will lead to the formation of Carbon 14, Tritium, and other radioactive substances which result from neutron irradiation and which, in principle, can also be used to detect an explosion.

2. When nuclear explosions occur between the earth's surface and a height of approximately ten kilometres the radioactive debris is thrown into the atmosphere where it is carried by winds to great distances. The concentration of this radioactive debris is greatly influenced by the vertical and horizontal distribution of the wind in the troposphere and in the lower layers of the stratosphere. The concentration is also decreased as a consequence of washing out by rain and gravitational deposition.

3. The distribution by height of the radioactive debris carried in the atmosphere will depend in the first place on the energy of the explosion, on the conditions in which the explosion took place (i. e. on the earth, under the earth, or in the air) and on the meteorological conditions at the moment of explosion. In the case of low energy explosions in the air up to a height of approximately ten kilometres the radioactive debris will initially concentrate in a small volume below the tropopause. This debris will gradually get disseminated both horizontally and vertically in the troposphere and in the course of a period of from one to thirty days (depending on the turbulence of the atmosphere, the wind structure, and the dimensions of the particles which carry the radioactive substances) it can be detected close to the earth's surface, as also at various heights up to the tropopause.

4. The spreading of the cloud in the atmosphere is determined by many meteorological processes. As a result of the action of these processes the cloud is bound to reach a stage when it is mixed in a vertical direction and spread in a horizontal direction in such a way as to afford the most convenient conditions for taking samples.

Calculations and experimental data give ground for considering that this stage will be reached in the period between the fifth and twentieth day of the existence of the cloud. Before that period the cloud may be too small, both in its horizontal and its vertical extent. After thirty days have expired a considerable part of the radioactive debris will decay and a sample will constitute a lesser proportion of the natural or other background, thereby making more difficult the detection and identification of an explosion.

5. Existing radiochemical techniques make it possible to detect and identify fresh decay products in a sample of radioactive debris containing about 10^8 fissions. The time of origin of this fresh debris can be determined within five to ten per cent of its age if the sample contains about 10^{10} fissions and is not contaminated to any considerable extent by old fission products.

6. The taking of samples on the surface of the earth by a network of control posts makes it possible to carry out continual monitoring of the contamination of the air at many separate points by means of air filtration and also by collecting radioactive fallout and fallout in rain. If control posts are disposed at distances of the order of 2,000–3,000 kilometres then an explosion with an energy of 1 kt set off in the troposphere (0–10 kilometres above the surface of the earth) will be detected with a high degree of reliability in the period of five to twenty days although the place of explosion cannot be exactly determined and although the time of explosion will be determined with some error. Calculation shows that with favourable meteorological conditions an explosion of even lesser energy can be detected in this way.

In the course of the period of time of from two to five days after an explosion of energy equivalent to 1 kt the collection of a sample of radioactive debris from the explosion which is suitable for analysis can be effected in the air by an aircraft if the area of the supposed location of the cloud is known approximately. The taking of such a sample will make it possible to establish approximately the point of the explosion by means of using meteorological data for back-tracking the trajectory of movement of the cloud.

7. Underground or underwater explosions set off at shallow depths and accompanied by the throwing up of earth or water can also be identified by the method of collecting radioactive samples although with lesser reliability than for explosions of the same energy in the troposphere.

8. The Conference of Experts considers that systematic measurements of radioactive substances in the air and also the collection of radioactive aerosols deposited on the ground and measurements of the radioactivity of precipitation can be successfully used for the detection of nuclear explosions and also, in many cases, for assessing

certain parameters relating to them even in the absence of other indications.

The utilisation for a regular control service, as a method for detecting nuclear explosions, of the taking of samples of the air by aircraft over oceans can be used for detecting nuclear explosions. For this purpose use should be made of existing aircraft flights over the oceans which are carried out by various countries for the purposes of meteorological observations.

9. The Conference of Experts considers that the method of taking samples of radioactive debris can also be used successfully for subsequent investigation of the fact of a nuclear explosion in those cases when there are the appropriate indications from other methods.

For this purpose it is possible to use the detection of radioactive debris remaining at the point of the supposed explosion (on the earth's surface, under the earth, in the water) and also the determination of the presence of a radioactive cloud in the period between two and five days after a supposed explosion in the atmosphere in the area where the cloud is calculated to be by the time of investigation.

In such a case search for the radioactive cloud can be made on an aircraft having equipment for the taking of a sample of radioactive debris. To this end use should be made chiefly of the aircraft flights over the oceans made for the purposes of meteorological observations.

10. In some cases use can be made of aircraft flights over the territories of the USA, the USSR, the UK and other countries to collect air samples for the purpose of checking on data obtained by other methods of detection of nuclear explosions.

The Experts consider that to accomplish this task it would be quite sufficient to make use of the aircraft of the country being overflown and that in such cases it is sufficient that flights for the purpose specified should be made along routes laid down in advance. Representatives of the USSR, the USA, the UK or other States participating in the operation of the control system may be on board these aircraft in the capacity of observers.

11. The experts note that in the course of time the sensitivity and efficiency of the method of collecting radioactive debris will increase as a consequence of the atmosphere becoming cleared of the radioactive products it contains, and also as a result of the perfection of the techniques for collecting and analysing samples.

C. *Conclusions as to the Applicability of the Method of Recording Seismic Waves for the Detection of Nuclear Explosions.*

The Conference has considered the processes of propagation of seismic waves generated by nuclear explosions and the methods for recording these waves for the purpose of determining the possibility of using them for the detection of underground and underwater nuclear explosions.

1. When nuclear explosions occur under the ground or under the water, longitudinal transverse and surface waves are formed and get propagated to great distances. The first longitudinal wave is the most important, both for detecting an explosion and for determining the place of the explosion, and also for distinguishing an earthquake from explosions. Transverse and surface waves also help to define the nature of a seismic perturbation.

2. Longitudinal seismic waves caused by underground nuclear explosions set off under conditions analogous to those in which the Rainier [2] shot occurred can be detected and the direction of first motion of the longitudinal wave can be determined at a distance of approximately 1,000 kilometres, and also at distances of approximately 2,000–3,500 kilometres at sites which are considerably more quiet than the average for:

(a) explosions of the order of one kiloton recorded during periods of favourable noise conditions.

(b) explosions of the order of five kilotons recorded during periods of unfavourable noise conditions.

It must be noted that all seismic stations situated at thousands of kilometres from one another cannot have an identically high or identically low level of background at one and the same time.

3. Conditions for detection and identification of underwater explosions set off in shallow water but at a sufficient depth, are considerably more favourable than conditions for detecting underground explosions.

4. Control posts carrying out seismic observations should be put at sites with a minimal level of microseismic background, such as are possible in internal continental regions. Such stations, when provided with arrays of seismographs, can insure the obtaining of the data indicated above. However, at stations which are in unfavourable regions such as coastal and island regions the noise level will be higher than at quiet stations inside continents. In these cases for detection and determination of the sign of first motion the energy of the explosion must increase in the ratio of the power of 3/2 with respect to the increase of background level. This is in part compensated by the fact that quiet stations inside continents will register more powerful explosions at distances of from 2,000 to 3,500 kilometres. Bursts with an energy of 5 kilotons and more will be detected by quiet stations placed at the distances named.

5. The majority of earthquakes can be distinguished from explosions with a high degree of reliability if the direction of first motion of the longitudinal wave is clearly registered at 5 or more seismic stations on various bearings from the epicentre. Thus not less than 90 per cent of all earthquakes taking place in continents can be identified. The remaining 10 per cent or less of cases will require the analysis of additional seismograms where this is possible; and for this purpose use must also be made of the data of the existing network of seismic stations. If required, these supplementary stations should be further equipped with improved apparatus. In relatively aseismic areas it is sufficient merely to define the position of the epicentre. In this connection cases of detection of seismic events will be regarded as suspicious and will require further investigation with the help of other

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[2] The underground nuclear explosion "Rainier" with an energy of 1.7 kilotons (Nevada) was set off in unfavourable conditions for transferring energy to the ground. However, even worse conditions of coupling are possible. [Footnote in original.]

methods. For those cases which remain unidentified inspection of the region will be necessary.

In regions where the regular disposition of seismic stations in quiet conditions is not possible, the percentage of correct identification of earthquakes will be less.

With modern methods and making use of the data of several surrounding seismic stations the area within which an epicentre is localized can be assessed as approximately 100–200 square kilometres.

6. It is noted that the range and accuracy of recording and identifying underground nuclear explosions can be improved in the future by means of perfecting the methods of recording seismic waves, both by way of perfecting apparatus and also by way of perfecting the methods for differentiating an earthquake from explosions.

D. *Conclusions on the Applicability of the Method of Recording of Radio Signals for the Detection of Nuclear Explosions.*

The Conference of Experts considered the generation and propagation of radio pulses originating from a nuclear explosion and the methods of recording these signals in order to determine the possibility of using them for the detection of nuclear explosions.

1. In the case of a nuclear explosion in the atmosphere, there arises a powerful electromagnetic radiation (radio signal), caused by the gamma radiation accompanying the explosion. In the case of underground, underwater, or specially shielded explosions radio emissions are not expected which can be recorded at great distances by modern techniques.

When the explosion is carried out on or above the surface of the earth (water) and without specially constructed layers to absorb gamma rays, the energy and spectral distribution of the radio signal are such that its essential components are propagated over the whole terrestrial globe. The strength of the radio signal depends upon certain features of the construction of the bomb and on the altitude of the explosion. An explosion of 1 kiloton yield can be detected by means of radio signals at distances exceeding 6,000 km assuming that in the neighbourhood of the receiving station there is no high noise level from local thunderstorms or other sources.

By radio direction finding methods, it is possible to determine the azimuth of the signal source with an accuracy of about 2°, i. e., about 30 km at a distance of 1,000 km. The time of production of the signal may be established with an accuracy of several milliseconds. The attainment of such accuracy depends on the choice of sufficiently flat location and on the absence of electrical interference at the receiving site.

2. Lightning flashes emit radio signals in the same frequency range and act as interference for the method of detection of a nuclear explosion by means of its radio signal.

Close to the source of radiation, the forms of radio signals from lightning and from nuclear explosions examined to date are quite different. However, at distances exceeding 1,000 kilometres, due to the distortion of the form of radio signals in the wave guide formed by the earth and the ionosphere, the form of radio signals from some individual lightning flashes is similar to the signal from nuclear explosions. The number of signals from lightning flashes recorded by apparatus without using special techniques of signal selection depends on the sensitivity of the apparatus and on the locality and can amount to from ten to several hundred signals per second. Existing techniques can be applied to exclude automatically the preponderant majority of signals from lightning. The distinction of the remaining signals due to atmospherics from those due to nuclear explosions requires the application of special methods of discrimination, including criteria on form of signal, spectral distribution and distance to source of radiation.

In the present state of the technique of the discrimination of signals in some individual cases the record of a signal cannot be identified either as coming from a nuclear explosion or from lightning.

3. The Conference of Experts recommends that further research should be carried out in order to understand more fully the physical properties of atmospherics involved in differentiating signals from nuclear explosions and atmospherics, by means of the development of the theory of this problem, the collection and systematization of data about atmospherics and the development of suitable automatic instruments. The Conference considers that there are good prospects for improvement of procedures of signal discrimination.

4. Theoretical considerations suggest that recording of radio signals can be used to detect nuclear explosions occurring at altitudes up to the order of 1,000 kilometres.

E. *Conclusions on the Methods of Detection of Nuclear Explosions Carried out at High Altitude (More than 30 to 50 Kilometres) Above the Earth*

The Conference of Experts has given theoretical consideration to the gamma radiation and neutrons resulting from a nuclear explosion and the conditions of recording them from earth satellites; and to optical phenomena and ionization of the air in the upper layers of the atmosphere in the case of a high altitude explosion (altitudes above 30–50 kilometres) and has arrived at the following conclusions:

1. A kiloton nuclear explosion produces at its source delayed gamma-rays from fission products, and prompt gamma-rays and neutrons. The number of prompt gamma-rays and neutrons depends upon the construction of the device and upon the materials surrounding it. The delayed gamma-rays are insignificantly affected by these factors. At a distance of 10^4 kilometres in vacuo, typical quantities of radiation from a one kiloton fission explosion are:

(a) Delayed gamma-rays
10^4 quanta/cm^2 during the first second
(b) prompt gamma rays [3]
10^2 quanta/cm^2
distributed over a time of about 10^{-7} sec.

[3] Special shielding of the exploding device can considerably reduce the gamma-radiation accompanying the reaction, but cannot reduce the radiation from fission products. However, such shielding involves increasing by several times the weight of the whole device. [Footnote in original.]

(c) Neutrons

10^4 neutrons/cm^2

distributed over a time of a few seconds.

The cosmic background at the height at which earth satellites orbit is under study at the present time, attention being paid to the quantity, nature and energy of the particles; however, on the basis of preliminary data, it can be considered that the detection of an explosion from an earth satellite is possible, by means of registering the gamma-rays accompanying the nuclear reaction, neglecting shielding, and also by means of registering the gamma rays of the fission products and the neutrons. If both prompt gamma rays and neutrons are registered, it is possible to get some idea of the distance to the explosion. The use of gamma-rays from a nuclear explosion will make it possible to detect the explosion in cosmic space at a distance of the order of hundreds of thousands of kilometres from the earth. Estimate of the maximum distance for the detection requires data concerning the magnitude of the cosmic radiation at the orbit of the earth satellite. If there is an explosion at a height of 30–50 km and above, and if the height at which the earth satellite orbits is some thousands of kilometres, one can neglect the absorption of gamma quanta in the upper layers of the atmosphere. The Conference of Experts considers that it is possible to use for the detection of nuclear explosions at high altitudes the registration of gamma-radiation and neutrons with properly instrumented earth satellites.

2. In the case of an explosion at a great height light will be emitted at the point of the explosion and there will be luminescence in the upper layers of the atmosphere under the action of X-rays and fast atoms from the materials in the device. Light phenomena may be detectable from the surface of the earth in clear weather at night with the help of simple apparatus; in day time with the help of more sensitive apparatus. In cloudy weather the detection of optical phenomena from stations on the earth's surface would probably be extremely difficult.

The radiation from a nuclear explosion creates in the upper layers of the atmosphere a region of increased ionization which is detectable by the absorption of cosmic radio-signals or by anomalies in the propagation of radio waves.

Our knowledge of the absorption of cosmic noise by ionospheric phenomena is not sufficient to determine the number of natural events similar to those resulting from a nuclear explosion.

The Conference of Experts considers that it is possible to use the recording of ionospheric phenomena, using appropriate radio techniques, and of optical phenomena for the detection of nuclear explosions at high altitudes.

3. The Conference of Experts has not considered the problem of the detection of nuclear explosions which might be conducted in cosmic space at distances of millions of kilometres from the earth.

F. The Conference has recommended the inclusion of the first four of these methods in the number of basic methods for detecting nuclear explosions by means of a network of control posts, and considers it possible to use several methods for detection of nuclear explosions at high altitudes as stated in IIE1 and IIE2.

III. Conclusions on the Question of the Technical Equipment of the Control System for the Detection and Identification of Nuclear Explosions

The Conference of Experts has considered the questions related to the technical equipment of a control net intended to detect and identify nuclear explosions, and has come to the following conclusions:

1. The posts of the control net situated in continents should regularly be equipped with apparatus for the detection of explosions by the acoustic and seismic methods and also by the methods of recording radio signals and of collecting radioactive debris.

2. Certain posts situated on islands or near the shores of oceans should be equipped, in addition to the methods just mentioned, with apparatus for hydroacoustic detection of explosions.

3. Posts located on ships stationed or drifting within specified ocean areas should be equipped with apparatus for the detection of explosions by the method of collecting radioactive debris and by the hydroacoustic method. The method of recording radio signals and the acoustic method might also be used on ships if suitable equipment is developed, but the effectiveness of these two methods, particularly the acoustic one, will be considerably less than on land.

4. The apparatus installed at posts of the control network must be uniform and must satisfy the following basic technical requirements:

A. *Seismic apparatus*

The seismic apparatus of the control post should include:

(1) Approximately 10 short-period vertical seismographs dispersed over a distance of 1.5–3 kilometres and connected to the recording system by lines of cable. The seismographs should have a maximum magnification of the order of 10^6 at a frequency of 1 c.p.s. and a receiving band adequate to reproduce the characteristic form of the seismic signal;

(2) 2 horizontal seismographs with the parameters indicated in point (1);

(3) One three-component installation of long-period seismographs having a broad receiving band and a constant magnification of the order of 10^3—2×10^3 in the period range 1—10 seconds;

(4) One three-component installation of seismographs with a narrow receiving band and magnification of the order of 3×10^4 when T=2—2.5 seconds;

(5) At certain posts one three-component installation of long-period seismographs with magnification of the order of 10^4—2×10^4 at periods of T=25 seconds;

(6) Auxiliary equipment necessary in order to get precise records of the seismic signal; recording devices, chronometers, power supply units and apparatus for receiving automatic radio-signals giving correct time.

The seismic apparatus should be installed in places with a minimal level of micro-seismic background, away from

industrial areas, and on outcrops of bedrock (where possible). The seismographs should be installed in suitable vaults.

The area required for installing the seismic apparatus should be about 3 x 3 kilometres.

B. *Acoustic apparatus*

(1) The infra-acoustic equipment for a control post should include not less than three sets of microbarographic units each of which should have: a system for averaging out turbulent noise, a pressure sensing unit, a transmission line and appropriate electronic amplifiers and automatic writing instruments;

(2) The sensitivity of the microbarographic stations must ensure recording of acoustic signals in the period range 0.5 – 40 seconds, with an amplitude of 0.1 dynes per cm^2;

(3) The pressure sensing units of the microbarographs should be dispersed at about 10 kilometres from one another in order to determine the direction of arrival of the acoustic signal and the speed of propagation of the signal;

(4) The hydroacoustic apparatus for a post, which is recommended for use only in oceanic zones, should include several hydrophones placed in the main submarine sound channel.

The hydrophones should be connected with the recording station on the coast by cables. Recordings of the hydroacoustic signal should be made in several frequency sub-ranges, covering a general frequency range of from one cycle per second to several thousand cycles per second.

The infra-acoustic equipment operates best in areas of low surface winds and flat terrain covered with trees or shrubs.

C. *Apparatus for recording a radio signal*

The apparatus for recording a radio signal should consist of:

(1) A loop-shaped radio direction finder or a radio direction finder with vertical antennas dispersed 4–5 kilometres from one another, with a frequency range of 10–15 kilocycles per second which will detect signals as low as 2 millivolts per metre;

(2) A device for recording the form of the signal, the device to provide recording of the form of the radiopulse in a frequency range 500 c.p.s. – 200 kilocycles per second when the intensity of the field is 10 millivolts per metre and more;

(3) An automatic selecting device based on separating out the characteristic electromagnetic signals accompanying nuclear explosions by their form, by their spectral density and by their amplitude and a device for analysing the signal spectrum that provides display of the spectral density of the signal in the frequency range 6 – 100 kilocycles per second. Although existing techniques exclude the preponderant majority of signals from lightning, further advantage will be taken of information from the acoustic, seismic or other basic methods of detection to aid in further discrimination between signals from nuclear explosions and from lightning flashes;

(4) The requisite measuring and auxiliary apparatus and also power-supply units and means for obtaining correct radio time signals.

The site on which the antennas and the electromagnetic recording apparatus are disposed should be on flat or rolling terrain with about 300 metres clear space around the antennas, and distant from sources of electrical interferences, power lines and communications lines.

D. *Apparatus for collecting and analysing radioactive debris*

The apparatus for collecting and analysing radioactive debris should include:

(1) A large filtering installation with a through-put capacity of 2×10^4 cubic metres of air over 10–24 hours, and which is used on a 24-hour basis;

(2) Equipment for collecting radioactive depositions—a surface with about 100 square metres area should be used. During dry weather, the surface can be washed down to collect dry fallout;

(3) A laboratory for simple radiochemical analysis.

Apparatus should be located in open areas, preferably on high ground, with high precipitation frequency. Apparatus should not be located in cut-off valleys or near regions with high natural background.

E. *Apparatus installed on aircraft for collecting radioactive debris and detection of a radioactive cloud.*

(1) A filtering installation for aircraft should provide for the collection of the maximum quantity of the products of radioactive decay, the rate of filtering being about 3500 cubic metres an hour.

(2) The aircraft utilized for the collection of radioactive debris should have equipment for the comparatively fast determination of the presence of fresh radioactive debris.

(3) A small radiochemical laboratory will be located at each base for routine aircraft sampling flights.

Aircraft flights over ocean areas should be laid out as nearly as possible in approximately a north-south direction, and located near the sides of the major continents, as well as in the centre of oceans remote from continents.

5. All the apparatus of the control posts should be designed for reliable continuous operation.

6. Improved apparatus and techniques should be actively developed and expeditiously incorporated into the control system for the purpose of continuously improving the effectiveness for the detection and identification of nuclear explosions.

IV. Conclusions on a Control System for Detecting Violations of a Possible Agreement on the Suspension of Nuclear Tests

The Conference of Experts, having considered a control system for detecting violations of a possible agreement on the suspension of nuclear tests, has come to the conclusion that the methods for detecting nuclear explosions available at the present time, viz. the method of collecting samples of radioactive debris, the methods of recording

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seismic, acoustic, and hydroacoustic waves, and the radio-signal method, along with the use of on-site inspection of unidentified events which could be suspected of being nuclear explosions, make it possible to detect and identify nuclear explosions, including low yield explosions (1–5 kt). The Conference has therefore come to the conclusion that it is technically feasible to establish with the capabilities and limitations indicated below, a workable and effective control system to detect violations of an agreement on the worldwide suspension of nuclear weapons tests.

The Conference of Experts has come to the following conclusions regarding such a system:

1. The control system should be under the direction of an international control organ which would ensure the coordination of the activities of the control system in such a way that the system would satisfy the following technical requirements and perform the functions involved:

(a) The development, testing, and acceptance of the measuring apparatus and of the equipment, and stating the criteria for the siting, of the control posts;

(b) Carrying out at the control posts and on aircraft, mentioned in items 3 and 5 of the present Conclusions, of continuous and effective observations for the phenomena which make it possible to detect nuclear explosions by the use of the methods recommended by the Conference;

(c) Reliable communication, with the aid of existing channels where they are suitable for this purpose, between the international control organ on the one hand and, on the other hand, the control posts and the bases from which the regular aircraft flights are carried out; communications and transportation should ensure the speedy transmission of the results of observations, of data (including samples), of reports, and of necessary supplies;

(d) Means of transport of personnel of the control posts in accordance with their duties and, so far as necessary, for the staff of the international control organ;

(e) Timely analysis and processing of the data from the observations of the control posts with the aim of speedily identifying events which could be suspected of being nuclear explosions, and in order to be able to report thereon in such manner as is considered by governments to be appropriate;

(f) Timely inspection of unidentified events which could be suspected of being nuclear explosions, in accordance with item 6 of the present Conclusions;

(g) Staffing of the control system (the network of control posts on land, on ships, and on aircraft, and also the staff of the international control organ) with qualified personnel having appropriate fields of specialization;

(h) Providing assistance in putting into effect a scientific research program, with the aim of raising the scientific standard of the system.

2. A network of control posts is characterized by three main parameters:

(a) The minimum yield adopted for the nuclear explosion or the natural events giving equivalent signals;

(b) The number of control posts;

(c) The probability of correct identification of natural events, particularly earthquakes.

The dependence between these parameters is such that with an increase in the yield of the explosion or the number of control posts the probability of detection and identification increases, and the number of unidentified events suspected of being a nuclear explosion decreases. On the other hand, for the identification of the increased number of unidentified events resulting from a smaller number of control posts it would be necessary to increase the number of on-site inspections or to make greater use of information coming from sources not subordinate to the international control organ or, if necessary, both.

The Conference considers that the problem of detecting and identifying underground explosions is one of the most difficult, and that, to a large extent, it determines the characteristics of the network of control posts.

3. The network of control posts would include from 160 to 170 land-based control posts (equipped in accordance with Section III of this report) and about 10 ships. Of these 160–170 control posts about 100–110 would be situated in continents, 20 on large oceanic islands, and 40 on small oceanic islands; however, the exact number of control posts within the limits indicated above, can be determined only in the process of actually disposing them around the globe, taking into account the presence of noise at the sites at which they are located, and other circumstances.

The spacing between the control posts in continental aseismic areas would be about 1700 kilometres, and in seismic areas about 1000 kilometres. The spacing between the control posts in ocean areas would vary between 2000 and more than 3500 kilometres; the spacing between island control posts in seismic areas would be about 1000 kilometres. This would lead to the following approximate distribution of control posts over the globe (with a network including 110 continental posts):
North America – 24, Europe – 6, Asia – 37, Australia – 7, South America – 16, Africa – 16, Antarctica – 4; together with 60 control posts on islands and about 10 ships.

4. The tasks of the personnel of the control posts would include the ensuring of the normal functioning of apparatus, the preliminary processing of data received, and the forwarding of these data to the international control organ and to the government of the country on whose territory the control post is located in such a manner as may be considered appropriate by governments.

In order to carry out the tasks required one might need for each control post about 30 persons with various qualifications and fields of specialization, and also some persons for the auxiliary servicing staff.

5. In addition to the basic network described, air sampling would be accomplished by aircraft carrying out regular flights along north-south routes over the oceans along the peripheries of the Atlantic and Pacific Oceans, and also over areas of the oceans which are remote from surface control posts.

When it is necessary to investigate whether a radio-

active cloud is present, in the case of detection of an unidentified event which could be suspected of being a nuclear explosion, special aircraft flights would be organized in order to collect samples of radioactive debris in accordance with Section II B 10.

6. When the control posts detect an event which cannot be identified by the international control organ and which could be suspected of being a nuclear explosion, the international control organ can send an inspection group to the site of this event in order to determine whether a nuclear explosion had taken place or not. The group would be provided with equipment and apparatus appropriate to its task in each case. The inspection group would forward a report on the investigation it had carried out to the international control organ, and to the government of the country on the territory of which the investigation was made in such a manner as may be considered appropriate by governments.

7. The network of control posts disposed as described, together with the use of aircraft as described, would have the following effectiveness, subject to the qualifications discussed in items 8 and 9:

(a) Good probability of detecting and identifying nuclear explosions of yields down to about 1 kiloton, taking place on the surface of the earth and up to 10 kilometre altitude, and good probability of detecting, but not always of identifying, explosions taking place at altitudes from 10 to 50 kilometre. In these cases the independent methods enumerated in Sections II A, II B and II D would be used.

(b) Good probability of detecting nuclear explosions of 1 kiloton yield set off deep in the open ocean. In this case use would be made of the independent hydroacoustic and seismic methods described in Sections II A and II C.

The identification of underwater explosions can, in comparatively rare cases, be made more difficult by natural events which give similar hydroacoustic and seismic signals.

(c) Good probability of recording seismic signals from deep underground nuclear explosions in continents equivalent to 1 kiloton and above. In this case use would be made of the seismic method described in Section II C.

The problem of identifying deep underground explosions is considered in item 8.

8. Along with the observation of signals of possible underground explosions the control posts would record at the same time a considerable number of similar signals from natural earthquakes. Although, with the present state of knowledge and techniques, the network of control posts would be unable to distinguish the signals from underground explosions from those of some earthquakes, it could identify as being of natural origin about 90 per cent of the continental earthquakes, whose signals are equivalent to 5 kiloton, and a small percentage of continental earthquakes equivalent to 1 kiloton.[4]

It has been estimated on the basis of existing data that the number of earthquakes which would be undistinguishable on the basis of their seismic signals from deep underground nuclear explosions of about 5 kiloton yield could be in continental areas from 20 to 100 a year. Those unidentified events which could be suspected of being nuclear explosions would be inspected as described in item 6.

The capability of the control system to identify underground nuclear explosions of 1–5 kiloton yield depends on:

(a) The small fraction of earthquakes that can be identified on the basis of data obtained from the control posts alone;

(b) The fraction of earthquakes that can be identified with the aid of supplementary data obtained from existing seismic stations; and

(c) The fraction of events still left unidentified which could be suspected of being nuclear explosions and for which the international control organ carries out inspection in accordance with item 6.

Although the control system would have great difficulty in obtaining positive identification of a carefully concealed deep underground nuclear explosion, there would always be a possibility of detection of such a violation by inspection.

The on-site inspection carried out by the international control organ in accordance with item 6 would be able to identify with good probability underwater nuclear explosions with a yield of 1 kiloton and above.

9. The Conference notes that in certain special cases the capability of detecting nuclear explosions would be reduced; for instance, when explosions are set off in those areas of the ocean where the number of control posts is small and the meteorological conditions are unfavorable; in the case of shallow underground explosions; when explosions are set off on islands in seismic regions; and in some other cases when the explosion is carefully concealed. In some cases it would be impossible to determine exactly the area in which a nuclear explosion that had been detected took place.

However, the Conference considers that whatever the precautionary measures adopted by a violator he could not be guaranteed against exposure, particularly if account is taken of the carrying out of inspection at the site of the suspected explosion.

10. The system described does not include specific means to detect and identify nuclear explosions at high altitudes (above 30–50 kilometres). The Conference has formulated its findings on the methods of detecting nuclear explosions set off at altitudes greater than 30–50 kilometres and has characterized these methods in Section II E.

11. The Conference of Experts recommends the control system described above for consideration by governments.

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[4] The Conference notes that in order to increase the percentage of earthquakes of less than 5 kiloton yield which could be identified, it would be appropriate to supplement the data from the control posts by trustworthy data from the best existing seismic stations. The results of the observations of these seismic stations should, for this purpose, be made available to the international control organ, and the equipment of the seismic stations suitable for this purpose could be improved by using the best modern apparatus. [Footnote in original.]

The following experts participated as delegates at the Conference:

Western Experts

Dr. James B. Fisk
Dr. Robert F. Bacher
Sir John Cockcraft
Dr. Ernest O. Lawrence
Sir William Pennoy
Prof. Yves André Rocard
Dr. O. M. Solandt

Delegations of:

Union of Soviet Socialist Republics

E. K. Fedorov
N. N. Semenov
I. E. Tamm
M. A. Sadovski

Delegations of—continued

Union of Soviet Socialist Republic—Continued

O. I. Leipunski
I. P. Pasechnik
K. E. Gubkin
S. K. Tsarapkin

Polish People's Republic

M. Miesowicz
L. Jurkiewicz

Polish People's Republic—Continued

M. Blusztajn

Czechoslovak Republic

Č. Simáně
F. Běhounek
A. Záťopek
Z. Trhlik

People's Republic of Romania

H. Hulubei

U.S. Asks Soviets for Reply to Letter of July 1

Following is the text of a reply to the Soviet Government's note of July 15, 1958, proposing conclusion of a treaty of friendship and cooperation by the European states and the United States, which was delivered to the Soviet Ministry of Foreign Affairs at Moscow by the American Embassy on August 22, 1958. Identical answers were delivered to the Soviet Ministry of Foreign Affairs by the British and French Embassies.

U.S. NOTE OF AUGUST 22

Press release 490 dated August 23

The United States Government has examined the Soviet Government's note of July 15 and the draft Treaty attached to it. It does not propose at present to comment on the substance of either. This is not because it agrees with what is said or with the premise on which the Soviet Government bases its arguments. The reason is simply that the United States Government notes that the proposals embodied in the draft Treaty are largely a reflection of proposals already included in the Soviet Memorandum of May 5 [1] about an agenda for a meeting of Heads of Government, although surprisingly no mention is made of such meeting in the Soviet note of July 15. The Western powers have made their own suggestions for topics to be examined by Heads of Government. They are prepared to express their views about the Soviet proposals and to receive Soviet views about their own. For this purpose, the Western powers suggested, as long ago as May 31,[2] a practical procedure for discussing the agenda which would be fair to both parties. They still await a reply to this and also to their letter of July 1.[3] In the meantime, to their regret, the preparatory discussions in Moscow are at a standstill. The United States Government believes that the first thing to be done, before the proposals of either party are discussed, is to resolve this question.

SOVIET NOTE OF JULY 15 [4]

Unofficial translation

Note No. 40/OSA

The Soviet Government considers it necessary to address itself to the Government of the United States of America on the following question.

The Government of the USSR considers that the situation unfolding on the European Continent obligates the Governments of all interested states to undertake efforts for working out joint measures which would halt the sliding of Europe toward war and to find roads toward the strengthening of peace on the basis of the growth of mutual trust and the broadening of multilateral cooperation between European states.

[1] BULLETIN of July 7, 1958, p. 17.

[2] For texts of documents on Western agenda proposals, see *ibid.*, p. 12.

[3] For a letter from President Eisenhower to Premier Khrushchev released by the White House on July 2, see *ibid.*, July 21, 1958, p. 95.

[4] Handed to American Ambassador Llewellyn E. Thompson at Moscow on July 15 by Soviet First Deputy Minister of Foreign Affairs V. V. Kuznetsov.

Both world wars experienced by mankind were brought down first of all on the head of the European nations. No one can deny that as a result of these wars the greatest human sacrifices and material losses were borne by these very countries of Europe. Tens of millions of Europeans were killed on the field of battle, perished through the bombing of peaceful cities, died from wounds and diseases, were tortured in Fascist concentration camps. In the course of military operations, many once well-built and flourishing cities and villages were obliterated from the face of the earth, irreplaceable monuments of culture were destroyed. At the cost for every country of those who will not return, for every family of the losses and incredible physical and moral strain, the peoples of Europe merit the right to worthwhile existence without fear of tomorrow, for themselves and for the fate of future generations.

Today, the peoples of the European countries are again compelled to live under the conditions of feverish military preparations, under the threat of still a more terrible military catastrophe. The principle of impartial cooperation in international affairs, about which not little was said in the period of struggle with the common enemy is far from respected by all.

It is impossible not to see that such measures as the continuous whipping up of the armament race, especially atomic and hydrogen, the growth of armies and military expenditures, the establishment of nuclear and missile bases on foreign territories, the transfer of this armament into hands of new states, first of all to the Federal Republic of Germany, means in reality nothing other than preparation of war. This aim is served and conducted in some countries by propaganda which permeates with a lack of faith in the possibility for preserving peace, nourishes feelings of enmity, estrangement and downright hostility toward states and peoples which are located beyond their military groupings, have chosen different political and social systems and are building their own life in accordance with their ideals. Creation of opposing military groupings of states has given birth on the European Continent to deep distrust and dangerous situation of tension.

It becomes more apparent every year that a war in Europe, if it unhappily should break out, and if at the same time special prohibitive or, at least, delimiting measures are not taken, will be a war using nuclear and ballistic means of annihilation. Despite the unilateral halting of tests of all types of atomic and hydrogen weapons by the Soviet Union, the USA and England continue to conduct such tests, to reject the conclusion of an agreement concerning renunciation of their use and, at the same time, they draw their allies in the North Atlantic Pact more and more into preparations for a ballistic missile-atomic war.

The assertion that supposedly by creating and accumulating the most deadly and destructive means of annihilation, mankind protects itself from the danger of a war utilizing these means appears as a challenge to good sense. The more atomic and hydrogen bombs in the arsenals of states, the wider the circle of states having nuclear and rocket weapons, the closer to each other the armed forces and bases of these powers, the more likely is the occurrence of a military explosion. To retain such a situation is just like holding a blow torch in a gun-powder magazine.

It is not difficult to imagine what would take place if the country-participants of the Warsaw Pact, instead of the measures which they take for the purpose of reducing tensions in Europe, began to operate in the same direction as the countries of NATO. It is understandable that the danger of a military explosion would increase one hundred-fold if they, in accordance with the example of NATO, in their turn began to impose an armaments race on other states, to move their military bases on foreign territories closer to the vital centers of the states-participants in the opposite military grouping, to send into the airspace of Europe to meet the American airplanes, which are continuously in the air and armed with atomic and hydrogen bombs, their own such military airplanes.

Being the largest state in Europe which twice in the course of one generation was subjected to invasion over its western borders, the Soviet Union, naturally, cannot but show unremitting concern over security in Europe which is inseparable from its own security. Millions of Soviet people did not give their lives on the field of battle during the Second World War in order that now the Soviet people could indifferently observe how in Europe inflammable material for a new war was being accumulated.

Like the other peace-loving states, the Soviet Union did and continues to do everything depending upon it to remove the danger of war and to establish peaceful cooperation based on trust among all the European states regardless of their social structure and membership in one or the other grouping of Powers.

The Soviet Union liquidated its military bases located in the territory of other states. Beyond the confines of its own borders the Soviet Union does not maintain stockpiles of atomic and hydrogen arms or missile launching sites. In the last three years the strength of the Soviet armed forces has been reduced unilaterally by a total of two million one hundred forty thousand persons. In this regard the armed forces of the USSR in the German Democratic Republic were reduced by more than ninety thousand persons. Military expenditures and armaments were correspondingly reduced. At the last session of the Supreme Soviet of the USSR a resolution was approved for the unilateral cessation by the Soviet Union of tests of all types of atomic and hydrogen arms.

At the meeting of the Political Consultative Committee of the states participating in the Warsaw Treaty, which took place at the end of May in Moscow, a decision was made concerning the withdrawal at a very early date from the Rumanian Peoples Republic of the Soviet armies which were there in conformity with that treaty and also concerning an additional reduction of the Soviet armies stationed in the territory of the Hungarian Peoples Republic.

Desiring to weaken the split appearing between the two basic groupings of powers in Europe which are in military conflict and to exclude the danger of the growing contradictions between them, the participants in the meeting proposed the conclusion of a pact of non-aggression be-

tween the member-states of the Warsaw Treaty and the member-states of the North Atlantic Alliance. The Soviet Government is convinced that the conclusion of such a pact of non-aggression would be a reliable preventive measure, strengthening the peace in Europe.

In spite of the tremendous positive role of such a pact of non-aggression, it is impossible, however, not to take into consideration that this measure represents only an initial step, the minimum, that it is necessary to undertake under present conditions for the purpose of establishing in Europe an atmosphere of due trust among states. It would be an unforgivable omission if, along with this, no effort was made to establish additional transitional steps from the present dangerous situation toward the establishment of the conditions of a firm peace in Europe.

The Soviet Government proceeds from the assumption that peace and security in Europe cannot be secured without the uniting of the efforts of all European states and the establishment among them of wide, all-inclusive cooperation. The experience at hand in regulating important international questions testifies that with good will on all sides possibilities and reserves can always be found for mutually acceptable decisions in aid of peace. Thus, in the first postwar years peace treaties were concluded with Bulgaria, Rumania, Hungary, Italy, and Finland, which to a significant degree contributed to the normalization of the position in Europe. Even more convincing testimony of this is the signature by the states in 1955, even under conditions of "cold war" and sharpened mistrust, of the Austrian state treaty, which reestablished the political and economic independence of Austria, as a neutral state.

The Government of the USSR, of course, knows that the governments of many Western European states, and also the USA, retain points of view different from its own on the reasons which have led to the present tension in Europe, just as in regard to the suitable measures for lessening this tension in the relations among European states.

Nevertheless, despite this, it is indisputable that the situation in Europe demands that the governments of the European countries rise above the present disagreements. Polemics not reinforced with real constructive steps, can of themselves neither stop the falling bombs nor lessen the force of their explosions. It cannot be allowed that disagreements disturb the sober contemplation of the facts which today fill Europeans with the feeling of deep alarm, and hide the most important thing—the necessity of earnestly and patiently seeking an agreement on concrete steps leading to the establishment of lasting peace in Europe.

As is well known, in the period between the two world wars the plans of guaranteeing security in Europe and the organization of general European cooperation suffered ruin above all because agreement was not achieved among the leading states which had the most powerful armed forces and whose united efforts would have made aggression impossible. In the opinion of the Soviet Government, it is necessary to study that period of history and not to repeat the serious errors of the past.

It is no longer necessary now to prove that the attempts to substitute for the solution of the tasks facing Europe as a whole the practice of founding on a narrow, closed basis different unions of individual European states, like the coal and steel community, the common market, EURATOM, and so on, lead only to a situation in which these states more and more are opposed to the other states of Europe, digging ever deeper the ditch dividing today the Western part of Europe from the Eastern.

The idea of cooperation of all European states, their drawing together in the interests of preserving the peace, of securing the well-being and flourishing of Europe, has deep roots in history and in the present life of European peoples. In the East as well as in the West of our continent, the striving for the development of mutual understanding and all round intercourse among European states is becoming stronger. The fact in particular that at the XII Session of the UN all European states and the USA voted for the resolution on peaceful and good neighborly relations among states[5] testifies in particular to this.

The Soviet Government considers that the governments of European states, and the Government of the United States, if they all wish to stop the dangerous development of events in Europe, should make efforts toward working out on a regional basis general European decisions, which in practice could be brought into existence at the present stage and which could be acceptable for all governments. In this connection it is introducing a proposal on concluding a treaty of friendship and cooperation by the European states and also by the United States.

In the view of the Soviet Government, in such a treaty it would be advisable to include provisions directed toward warning and warding off aggression in Europe and toward strengthening the security of all European countries. In this it would be important to express the obligation of the European states and also the USA not to assist militarily or economically or to support morally any state disturbing the peace of Europe, regardless of whether they are or are not partners of the aggressor state under existing military pacts and treaties. It is known that the idea of such an agreement has been expressed many times in recent years including by the Governments of the USA, England, and France.

Taking into account the fact that the achievement of an agreement on disarmament is attended by significant difficulties and that the efforts made over many years in that direction have led to no progress whatever, the Soviet Government proposes to consider in the treaty measures which would make possible the elimination of the arms race and the execution in Europe of measures for curtailing the armies of the organizations of the Warsaw Pact and the North Atlantic Alliance. The initiative on the part of the European states in searching for such partial solutions could open the perspective also for broader agreements connected with the problem of disarmament.

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[5] For a statement by Ambassador Henry Cabot Lodge, U.S. Representative to the United Nations, during debate on the resolution in Committee I, see BULLETIN of Jan. 20, 1958, p. 105.

Of major significance for preventing armed conflicts in Europe would be the foundation in direct continuity with the line dividing the military groupings existing in Europe of a zone in which neither the production nor the stationing of atomic, hydrogen, and rocket weapons would be allowed. In this case the parties to the treaty would take on the obligation to respect the status of the said zone and consider the territory of the states entering into it as excluded from the sphere of employment of the said type of arms.

In the treaty it would be desirable also to consider providing for the beginning of the reduction in the next one or two years of the number of foreign armed forces on the territory of Germany to ⅓ or to a limit otherwise agreed on. With the carrying out of such a reduction it would be possible to agree on the establishment of a reliable system of control and inspection of the execution of this obligation by the parties to the appropriate treaty.

The Soviet Government expresses itself in favor of the execution of aerial photography in the limits of a definite zone located on both sides of the line dividing the armed forces of the states party to the Warsaw Treaty and the North Atlantic Alliance to prevent surprise attack.

The development of the economy of the states-party to the treaty, the adjusting of peaceful business intercourse and mutual understanding among them undoubtedly would be facilitated by the expansion of mutually profitable and equitable economic cooperation on a basis excluding any discrimination or artificial limitations of any kind. Inclusion in the treaty of the above provisions would be all the more useful in that the encouragement of free-world trade would render good service to a number of states in whose economy especially in recent times unhealthy phenomena are making themselves felt.

The Soviet Government is a supporter of the development of the cooperation of European states and also of the USA for the solution of the great task of peaceful uses of atomic energy. It considers it desirable to express in the treaty the readiness of its participants to exchange experience of scientific research and industrial application of atomic energy, as well as raw material, materials and equipment. The joining of the efforts of the participants of the treaty in this field would assist in raising the well-being of people, the further development of science and culture and would ever more push ahead the frontiers of knowledge of the laws of nature and their utilization for the good of man.

In the opinion of the Soviet Government, the participants of the treaty would be able to put on a more solid foundation the development of ties and contacts with each other, especially along the lines of science, technology and culture with the aim of mutual familiarization with the national accomplishments of the peoples.

The treaty would also envisage other measures, the realization of which would facilitate lessening of the threat of an outbreak of war in Europe. The Soviet Government is guided by the conviction that the proposed measures in the aggregate will lead to the transformation of Europe into a zone of lasting peace and real security.

Taking into account the considerations outlined above, the Soviet Government is introducing for the examination of the Government of the United States of America and also of the governments of European states a draft "Treaty of Friendship and Cooperation of European States" and expresses the hope that the Government of the United States will regard this proposal favorably.

Moscow, *15 July 1958*

TEXT OF PROPOSED TREATY[6]

The Signatories

Resolved to promote in every way the development of friendly relations and cooperation between European states and to resolve all questions arising between them exclusively by peaceful means: recognizing that the creation of an atmosphere of trust between them is the most important task of the peoples of the European states, of excluding the possibility of the outbreak of a new war on the European continent;

Animated by a desire to carry out the high principles of the UN and in development of the situation in keeping with the resolution concerning peaceful and good neighborly relations between states, approved by the XII Session of the General Assembly of the UN,

They have decided to conclude the present treaty on Friendship and Collaboration of the European states and to these ends have agreed as follows:

Article 1

The signatories of the treaty may be all European states and the United States of America which recognize the aims and accept for themselves the obligations set forth in the present treaty.

Article 2

The signatories will, in the spirit of genuine cooperation and mutual understanding, develop and strengthen good neighborly and friendly relations among their peoples on the basis of the principles of mutual respect for territorial integrity and sovereignty, non-aggression, non-interference in each other's internal affairs, equality and mutual advantage.

Article 3

The signatories obligate themselves to solve all disputes which may arise among them exclusively by peaceful means and in accordance with the principles of the United Nations Charter.

In case a situation arises which could lead to a deterioration of the friendly relations between states or create a threat to the peace in Europe, the signatories will consult at once with one another for the purpose of taking such necessary mutual measures as are found appropriate for the elimination of the situation which has arisen.

Article 4

If one or more of the signatories is subjected to an attack on the part of any state, the other signatories to this treaty obligate themselves not to provide military and economic aid or moral support to the aggressor regard-

[6] Enclosed with Soviet Note No. 40/OSA.

less of whether or not they are bound as allies or by some other commitments with the aggressor state.

Article 5

Until the conclusion of a general agreement on the limitations of arms and of armed forces and the banning of atomic weapons the signatories are obligated:

a) To reduce in the course of 1 to 2 years their armed forces and arms located in the territory of Germany by ⅓ or by another agreed amount, whereby the reduced contingents of armed forces must be withdrawn from the territory of Germany to within the confines of their own national borders.

After the aforesaid reduction of armed forces and armaments, to consider the question of the further reduction of foreign armed forces which are stationed on the territory of Germany and also the reduction of foreign armed forces located on the territory of other European states with the removal in both cases of the reduced contingents of the armed forces to the confines of their own national borders.

Regularly, and not less than twice yearly, to exchange information on the strength of armed forces and the quantity of armament of the signatories located on the territory of other states in Europe;

b) For the prevention of a possible surprise attack to provide for the conducting of aerial photography within a zone extending for 800 kilometers from the line demarking the armed forces of the member-countries of the North Atlantic Treaty and the participating states of the Warsaw Treaty. Such a zone will be established by agreement with the states whose territories are included in this zone.

The representatives of the signatories in the course of not more than 6 months after the signing of the present treaty will define the boundaries of the zones specified in paragraph (b) and will also establish an appropriate system of control and inspection for the fulfillment of the obligations specified in the present Article.

Article 6

The signatories unanimously favor the creation of a zone in Central Europe, free from the production and presence of atomic, hydrogen, and missile weapons, as well as from the equipping and manning of the above mentioned types of arms. This zone ought to comprise with the agreement of the appropriate governments the territory of the German Democratic Republic, the Federal Republic of Germany, the Polish Peoples' Republic, and the Czechoslovak Republic.

The signatories are obligated to respect the status of this zone and consider the territory of the governments which comprise it as a sphere for the use of atomic, hydrogen, and missile weapons. They recognize as indispensable the establishment of an appropriate system of control and inspection for fulfillment of agreement concerning the creation of such a zone.

Article 7

Proceeding on the belief, that economic cooperation and contacts between states are the natural and stable foundation for the strengthening of peaceful and friendly relations between them, the signatories are obligated:

a) To develop economic cooperation and an exchange of experience; to extend the necessary cooperation to one another in the matter of solving the most urgent economic problems facing the most important significance for insuring the full employment of the population and the improvement of their well being;

To develop in every possible way cooperation in the field of trade between the countries participating in the agreement on the principles of full equality and mutual benefit.

b) To take measures toward the gradual elimination of the obstacles and limitations still existing in the field of the development of economic relations between states on the basis of bilateral and multilateral agreements, as well as within the framework and by means of the European economic commission of the UN;

c) To develop cooperation in the field of utilization of atomic energy for peaceful purposes, including exchange of experience in the construction of atomic energy, and the exchange of specialists, raw and other materials, and equipment.

Article 8

For the purpose of broadening international ties and cooperation in the field of science and culture, furthering mutual understanding between peoples, the signatories are obligated to develop and strengthen mutual ties in the field of science, culture, technology, and education. To these ends they express readiness to discuss in the near future concrete questions of cultural and scientific cooperation, having in view the conclusion of a bilateral or multilateral agreement on these questions.

Article 9

The present treaty is valid for a period of 10 years.

The treaty is subject to ratification in conformity with the legislative powers of the signatory states of the treaty.

Article 10

The treaty is open for the adherence of all European states.

Article 11

The present treaty, the Russian, English, French and German texts of which are authentic, will be submitted to the custody of the Secretary-General of the UN.

In witness thereof, the plenipotentiaries have signed the present treaty and have affixed their seals thereto.

DRAWN UP IN THE CITY _____ 1958.

Mr. Adams Named U.S. Commissioner on International Joint Commission

The White House announced on August 28 that the President had on that day appointed Francis L. Adams to be a Commissioner on the part of the

United States on the International Joint Commission, United States and Canada, vice Roger B. McWhorter, resigned.

Revisions in Battle Act Embargo List

Press release 505 dated September 3

DEPARTMENT ANNOUNCEMENT

Douglas Dillon, Under Secretary for Economic Affairs and Administrator of the Mutual Defense Assistance Control Act of 1951 (Battle Act), announced on September 3 revisions in the Battle Act lists—the lists of items administered by the Department of State under the East-West security trade control program.[1] The act directs that the embargo list "shall be continuously adjusted to current conditions on the basis of investigation and consultation." The last major revision was in 1954.[2] These revisions involve intensive evaluation of economic and military developments, as well as the technical, intelligence, and other relevant factors determining the scope and measures necessary for the economic defense of the free world.

The revised lists, which became effective August 15, 1958, added some new items which embody recent technological and scientific advances and whose strategic significance therefore had increased since the last revision. Other items were removed because of a corresponding decrease in their strategic importance.

All countries receiving U.S. military, economic, or financial assistance and other free-world nations whose cooperation is sought to achieve the purposes of the act, as well as the six committees of the Congress mentioned in the act, are being provided with the revised lists.

Following is the revised unclassified title I, category A, Battle Act list of embargoed items, consisting of arms, ammunition, implements of war, and atomic energy materials.

[1] For a Department of Commerce announcement of August 14 of changes being made in U.S. export controls, see BULLETIN of Sept. 8, 1958, p. 392.

[2] *Ibid.*, Sept. 13, 1954, p. 372.

TITLE I LIST—CATEGORY A

100–199 SERIES: ARMS, AMMUNITION, AND IMPLEMENTS OF WAR

Item No. — *Description*

101 Small arms and machine guns, as follows:
- (a) Rifles, carbines, revolvers, pistols, machine pistols and machine guns designed specifically for military use;
- (b) All specifically designed components and parts therefor.

102 Artillery, as follows:
- (a) Guns, howitzers, cannon, mortars, tank destroyers, rocket launchers, military flame throwers, recoilless rifles;
- (b) All specifically designed components and parts for the foregoing.

103 Ammunition, and all specifically designed components and parts thereof, for the weapons enumerated under Items 101 and 102.

104 Bombs, torpedoes, rockets, and missiles guided or unguided, as follows:
- (a) Bombs, torpedoes, grenades (including smoke grenades), smoke canisters, rockets, mines, missiles guided or unguided, depth charges, fire bombs, incendiary bombs; *and* all specifically designed components and parts therefor;
- (b) Apparatus and devices specifically designed for the handling, control, activation, launching, laying, sweeping, discharging, detonation or detection of items enumerated in subitem (a); and all specifically designed components and parts therefor;
- (c) Military fuel thickeners, including but not limited to: compounds (e. g., octal) or mixtures of such compounds (e. g., napalm) specifically formulated for the purpose of producing materials which, when added to petroleum products, provide a gel-type incendiary material for use in bombs, projectiles, flame throwers, or other implements of war.

105 Fire control equipment and range finders, as follows:
- (a) Fire control, gun laying, night sighting, missile tracking, and guidance equipment;
- (b) Range, position and height finders, and spotting instruments specially designed for military purposes;
- (c) Aiming devices, electronic, gyroscopic, acoustic and optical, specially designed for military purposes;
- (d) Bomb sights, bombing computers, gun sights and periscopes specially designed for military purposes;
- (e) Television sighting units specially designed for military purposes, and inertial platforms;
- (f) Components, parts, accessories, and attachments specifically designed for the articles enumerated in sub-items (a), (b), (c), (d) and (e) above.

106 Tanks, and vehicles specially designed for military purposes, as follows:
- (a) Tanks and self-propelled guns;
- (b) Military type armed or armored vehicles, and vehicles fitted with mountings for arms;
- (c) Armored railway trains;
- (d) Military half tracks;
- (e) Military type recovery vehicles;
- (f) Gun carriers and tractors specially designed for towing artillery;

(g) Trailers specifically designed to carry ammunition;
(h) Amphibious and deep water fording military vehicles;
(i) Military mobile repair shops specifically designed to service military equipment;
(j) All other specially designed military vehicles;
(k) All specifically designed components and parts for the foregoing.

107 Toxicological agents, as follows:
(a) Biological, chemical, and radioactive materials adapted for use in war to produce casualties in men or animals, or to damage crops;
(b) Equipment specifically designed and intended for the dissemination of the materials described in sub-item (a);
(c) Equipment specifically designed and intended for defense against the materials described in sub-item (a), and for their detection and identification;
(d) Components and parts specially designed for the items listed in (b) and (c) above.
(NOTE: Sub-item (c) above does not include masks used for protection against specific industrial hazards, such as fumes or powders in mining, quarrying, and chemical plants, and gas masks designed for civilian use.)

108 Powders, explosives and propellants, as follows:
(a) Powders and liquid or solid propellants for the articles enumerated in Items Nos. 103, 104, and 107;
(b) Military high explosives;
(c) Chemical base high energy solid or liquid fuels specially formulated for military purposes.
(NOTE: Sub-items (a) and (b) above will not be considered to cover exports in reasonable quantities of propellants and explosives normally used for civilian or industrial purposes or made up into cartridges or charges of an exclusively civilian or industrial nature.)

109 Vessels of war, and special naval equipment, as follows:
(a) Combatant vessels or vessels designed for offensive or defensive action (surface or underwater);
(b) (1) Diesel engines of 1,500 h. p. and over with rotary speed of 600 r. p. m. or over (*except* those incorporated in generator sets);
(2) Electric motors over 1,000 h. p., reversing type, liquid cooled and totally enclosed;
(c) Magnetic, pressure, and acoustic underwater detection devices specially designed for military purposes, controls and components thereof;
(d) Submarine and torpedo nets;
(e) Components, parts, accessories and attachments for the foregoing, such as turrets, naval gun mounts, submarine batteries and catapults.

110 Aircraft and helicopters, of the piloted or pilotless types and aero-engines and aircraft equipment, associated equipment and components, specially designed for military purposes as set out below:
(a) Combat aircraft and other aircraft specially designed for military purposes, including military reconnaissance, assault, military training, and logistic support, and all aircraft having special structural features such as multiple hatches, special doors, ramps, reinforced floors, and the like, for transporting and airdropping troops, military equipment, and supplies; aero-engines specially designed or adapted for use with such aircraft; and component parts thereof;
(b) Airborne equipment, including airborne refueling equipment, specially designed for use with the aircraft and the engines of the types of aircraft covered by sub-item (a) and component parts thereof;
(c) Nonexpansive balloons in excess of 3,000 cubic feet capacity.

111 Electronic equipment specially designed for military use; and components and parts therefor.

115 Military infra-red equipment and specialized components therefor, not elsewhere specified.

116 Munitions components and materials, as follows:
(a) Brass and bronze fabrications for primer anvils, fabrications for bullet cups (gilding metal clad steel), cartridge link, primer cap, shell rotating bank;
(b) Copper rotating bands for shells, and other copper munitions components.
(c) Gilding metal clad steel;
(d) Rough steel forgings, steel and alloy castings for guns and for arms.

200—299 SERIES: ATOMIC ENERGY MATERIALS

Item No. *Description*

201 Fissionable materials, *including* but not limited to:
(a) Plutonium;
(b) Uranium enriched in the isotope 233 or in the isotope 235;
(c) Any material artificially enriched by any of the foregoing.

202 Uranium metal; thorium metal.

203 Metals, alloys, and compounds containing uranium or thorium, (*excluding* (i) alloys, not containing uranium, but containing less than 1.5 percent of thorium by weights; and (ii) medicinals).

204 Minerals, raw and treated (including residues and tailings), which contain by weight at least 0.05 percent of uranium or thorium or any combination thereof, *including* but not limited to:
(a) Monazite sand and other ores containing thorium;
(b) Carnotite, pitchblende and other ores containing uranium.

205 Deuterium and compounds, mixtures, and solutions containing deuterium, *including* heavy water and heavy paraffin, in which the ratio of deuterium atoms to hydrogen atoms exceeds 1:5000 by number.

218 Equipment specifically designed for the separation of isotopes of uranium.

219 Cyclotrons, belt-type electrostatic generators (Van de Graaff machines), synchro-cyclotrons, betatrons, synchotrons, linear accelerators and other electronuclear machines capable of imparting energies in excess of 1,000,000 electron volts to a nuclear particle or an ion (except such electronuclear machines specifically designed for use in medical diagnosis and therapy); and magnets specifically designed therefor.

220 Radiation detection instruments and components of the following types, designed or capable of being adapted for detection or measurement of nuclear radiations, such as alpha and beta particles, gamma radiations, neutrons and protons:
(a) Proportional counters;

(b) Neutron counters containing boron, boron trifluoride, or hydrogen;
(c) Scaling units and rate meters, suitable for use in radiation detection;
(d) Scintillation counters incorporating a photomultiplier tube.

222 Ion separators, electromagnetic, *including* mass spectrographs and mass spectrometers for any purpose.

223 Acceleration tubes and focusing tubes of the kinds used in mass spectrometers and mass spectrographs.

224 Positive ion sources suitable for use in cyclotrons, mass spectrometers and the like.

Planning Economic Development in the Arab World

by Norman Burns[1]

First of all I would like to compliment your program committee upon their choice of a topic for this morning's session, namely, "Economic Potential of the Arab States."

This subject is of fundamental importance to the Arab people. Your selection of this topic will enable the convention to:

(a) Review briefly the very considerable measures already taken by the Arab states to set the stage for economic development;

(b) Explore the potential for future economic development; and to

(c) Formulate its views regarding the kind of planning that will enable the Arab countries to realize their full economic potential.

The thoughts that I am expressing here this morning will not be new to you. You will have heard such opinions often from Arab economists in your own countries who have been urging, in rising crescendo over the last two or three decades, greater economic development to bring about better living conditions for the mass of people. My views are only a synthesis of what I, as a foreign visitor, saw and heard during the years I was privileged to live in the Arab countries since my first sojourn there in 1929.

Stages of Economic Growth

Economic historians, who have studied the processes of economic development in many societies throughout the world over the last few centuries, tell us that most societies pass through four distinct stages of economic growth in their evolution to full economic maturity. These stages are:

1. The traditional society.
2. Preconditions for the takeoff.
3. The takeoff stage—where society acquires the habit of rapid economic growth.
4. Economic maturity—when production has outstripped population to a point where real income rises well above the subsistence level, resulting in higher living standards for the vast majority of the population.

Traditional Stage

In the traditional stage, society is based upon custom. There is stability in this phase, but it is a static stability in which people accept their lot because it was the lot of their fathers and forefathers before them. The traditional societies are primarily agricultural. Population remains relatively constant over the years, with both birth and death rate being very high. Production is low. Poverty is the lot of the masses. This traditional stage characterized the Middle East until the end of World War I.

Preconditions for the Takeoff

Traditional societies do not always remain traditional; but some evolve faster than others. What causes a society that has been static for centuries to experience a spurt of energy that economic historians call the takeoff? What are the preconditions for the takeoff?

Economic historians say that one major precondition is the establishment of a central government

[1] Address made before the seventh annual convention of the Organization of Arab Students in the United States at the University of Illinois, Urbana, Ill., on Sept. 3 (press release 504 dated Sept. 2). Mr. Burns is Deputy Regional Director for the Near East and South Asia, International Cooperation Administration.

strong enough to maintain internal order over a wide area so that people can engage in economic activity in relative security and at the same time strong enough to protect those within against external attack. This condition is often brought about by the threat of external interference which stimulates a consciousness of the general group interest (as distinguished from family, clan, or sect interest) and a realization of the need to strengthen the central government to protect the group interest against the external threat. Hence, nationalism is often associated with and a precondition of the takeoff.

A second precondition is the emergence of some form of economic activity that will bring together in one enterprise enough people and capital to carry economic activity out of the purely handicraft stage and to focus emphasis upon more efficient means of production, laborsaving devices, mechanization, the development of more intensive skills and an expansion of markets. Such aggregates developed in England during the 17th century in textile manufacturing and coal mining, in the United States during the 19th century in northern factories and railroads, in Japan at the end of the 19th century in textile manufacturing and shipping. During this process people become aware that scientific techniques enable them to control their environment in a way that was never possible in the traditional stage when they had to rely almost entirely upon human and animal power. Scientific techniques (machines and chemical technology) give them the power—which they never had in the traditional stage—to increase production tremendously and to raise their own living standards. The new technology—movie, radio, and automobile—enables them to learn how other people benefit from the fruits of the new technology. Thus the new technology generates what some have called the rising tide of expectation of the masses for a better economic and social life.

A third precondition (closely associated with the second precondition) to the takeoff is an improvement in agricultural-production methods that will enable the agricultural sector of the population to feed not only itself but also the growing nonagricultural population needed in the takeoff stage for industrial production and general services, e. g., factory workers, government employees, doctors, teachers, construction workers, etc. In the United States, for example, during the traditional stage at the end of the 18th century, the agricultural sector raised enough food to feed itself plus a nonagricultural population equivalent to one-third of the agricultural population. But today the agricultural sector raises enough food to feed itself plus a nonagricultural population eight times that of the agricultural population. A similar process seems to have started in the Arab Near East where large urban concentrations are developing—e. g., Cairo, Alexandria, Beirut, Damascus, Aleppo, Baghdad, Basra, etc.—and where the urban proportion of the population is increasing, relative to the rural. Near East industrial production is increasing faster than agricultural production, according to the U.N. *Economic Developments in the Middle East, 1956–57.*[2]

The Arab Middle East has been passing through this stage—the preconditions for the takeoff—during the last quarter of a century. Central governments, encouraged or forced by nationalism, have strengthened their authority and widened the area of their authority to insure order within for the people to expand their economic activity and protection from without that the Arab people may evolve along the lines of their own national aspirations.

Not only the foreign developed oil industry but the multitude of locally owned textile, food-processing, and building-material factories that have sprung up since the war have brought capital and people together to focus attention upon improved production techniques, greater technical skills, wider markets, etc. The Arab people have acquired the spirit of economic growth. They have become aware of the potentialities of the new technologies and are demanding economic and social benefits that they would never have thought of only 25 years ago.

Central governments, responding in greater or lesser degree to the popular pressures, have developed much of the infrastructure prerequisite for the takeoff stage of economic growth, namely, roads, railroads, irrigation systems, public water, sewage and health services, elementary schools, agricultural and vocational training centers, etc.

Many modern factories and large irrigation works may be seen in most of the Arab countries today, which have sprung up since the last war.

[2] U.N. publication 1958.II.C.2 (U.N. doc. E/3116) (Corr. 1).

The administrative structure of the central governments has been expanded to include ministries of industry, public works and communications, public health, social welfare, and education, bureaus of statistics, laboratories for public health, agriculture, and industrial testing, and agricultural colleges which hardly existed, if at all, 25 years ago. Fiscal systems have been modernized to obtain more government revenue and to channel such revenue into productive development. In recent years the Arab states, Egypt, Syria, Lebanon, Iraq, and Jordan, have devoted nearly one-half of their total central-government expenditures to economic and social services, as compared with one-third for defense and police. Arab government expenditures on education alone have increased fivefold in the last 15 years. The Arab states are now at the threshold of the takeoff stage.

Takeoff Stage

The takeoff stage of economic growth is one of tension and acute problems. Population expands rapidly, with the birth rate remaining high as in the past and the death rate falling as new technology spreads to public health. More people want more things and are determined to get more things. The rising tide of expectation of the masses becomes a dominant force in the takeoff stage.

Nationalism that emerged in the precondition stage intensifies in the takeoff phase when the awakened masses want to improve not only internal conditions but also the position of their country relative to the more developed countries. In the takeoff stage resurgent nationalism and social reform march hand in hand. These powerful forces may alter the structure of the traditional society to create a new framework that will encourage more rapid economic growth, with the benefits spread throughout the entire population. But there is always danger that the forces of nationalism and social reform may dissipate themselves in unproductive struggle leading to a new but different solidification of the social structure that will benefit only a particular segment of the population (not necessarily the old elite) at the expense of the majority and without improving economic and social conditions for the masses.

What particular problems face the Arab states in the takeoff phase of economic growth? The Arab states are confronted with a rapidly expanding population insistent upon better living standards. The Arab states—United Arab Republic, Jordan, Lebanon, Saudi Arabia, Sudan, Libya, and Kuwait—have a population of 50 million that is increasing at 2 percent net per year. This means that within another 20 years there will be an additional 25 million people to feed, shelter, clothe, and educate. The only way in which living standards can be raised for this expanding population is to increase production faster than population. Thus, the Arab states are faced with an overwhelming need to accelerate their economic development. This requires heavy new capital investment. Economic historians estimate that, to achieve the desired rate of economic growth in the takeoff period, new capital investment must reach 15 or 20 percent of the total national income. In the traditional stage new capital investment seldom exceeds 5 percent of total national income.

Not only must economic development be speeded up, but the increased output must be passed on to the masses if the Arab states are to pass successfully through the takeoff stage into full economic maturity with higher real income for the great majority of the population. This crucial fact should be kept in mind by all those who are concerned with planning economic development in the Arab world.

Guidelines for Planning Economic Development

How can the great human and material resources of the Middle East be brought to bear more fully upon this problem? What are the planning guidelines that will encourage more rapid economic growth, with the benefits spread throughout all classes of society?

The first guideline, I believe, should be to emphasize agricultural expansion. This would have two major economic effects. It would provide more food for local people, many of whom live on less than 2,000 calories per day. It would enable the Middle East countries that are net food importers—Egypt, Saudi Arabia, Lebanon, Jordan, and Libya—to reduce their imports of foodstuffs, thereby releasing foreign exchange for the importation of heavy equipment and materials needed in their major economic development projects.

Three-fourths of the Middle East people make their living from agriculture—yet the area of cropped land is small relative to population. The

land-man ratio—that is, the ratio of annually cropped land to total population of the country—is very low, i. e., only .3 to 1.0 acre per person in the various countries as compared with 2.3 acres per person in the United States. The area of cultivated land should be expanded, and this means irrigation since most of the available rainfed land is already in use. Water resources are available if utilized. At present, 50 percent of the Nile River waters, 75 percent of the Tigris-Euphrates water, and over 90 percent of the waters of the Jordan, Orontes, and Litani Rivers flow wasted into the sea. Engineering plans have been made by the Arab governments to harness these waters and some projects are already being carried out, but, until these irrigation plans are implemented on a large scale (at large capital cost), it will be difficult to bring about a major expansion in agricultural production in the Arab Middle East.

Steps are being taken to improve agricultural production techniques, and these should be encouraged. As a result of such measures, accompanied by an expansion in cultivated acreage, the total food production in the Near East was 52 percent higher and per capita food production 8 percent higher in 1956–57 than the 4-year prewar average, according to the FAO *State of Food and Agriculture, 1957*.[3] Among the desirable steps are land tenure reform so the cultivators will have a greater stake in increasing output which will belong to them rather than to the landlords. Egypt has already made great strides under its land-reform law of 1952. Village aid programs, emphasizing health, educational, agricultural, and vocational services for the fellahin, increase agricultural production and benefit the masses. The Iraqi miri sirf program, the Egyptian rural village centers, and the Musa Bey Alami project in Jordan are examples of such constructive programs. Agricultural experimentation and demonstration farms, including agricultural extension services to bring knowledge of the new techniques to the fellahin, should have high priority in all long-range development programs. Such farms have been started in Lebanon, Syria, Iraq, Jordan, Egypt, Saudi Arabia, and Sudan.

A second guideline would be to expand industry so as to give the Near East countries a better balanced economy. One-crop exporting countries are usually too highly dependent upon world markets for a single crop to achieve stability in either their balance of payments, their government budgets, or their general internal economy. Among local industries that might be encouraged are those based upon the processing of local raw materials, e. g. food processing and textiles, and those where transportation costs give local producers a competitive advantage, e. g. cement, brick, concrete pipe, etc. Local petroleum will provide a cheap source of power for such industries. The expansion of local industry would be facilitated by the reduction of intraregional trade barriers. The Arab states have already made considerable progress since 1953 in reducing intraregional trade barriers, especially in agricultural products but less so in industrial products. The U.N. reports that only one-seventh of the Near East countries trade is intraregional, the great bulk of the trade being with Western Europe.

The third guideline would emphasize education in general and agricultural and vocational training in particular, since implementation of the large agricultural and industrial development programs depends upon the availability of skilled labor, agricultural experts, and engineers. Engineering schools such as that at Aleppo in Syria, agricultural colleges such as that at Abu Ghrayib in Iraq, vocational trade schools such as those at Amman and Kalandia in Jordan, and engineering and agricultural schools such as those in Egypt are already turning out a growing supply of trained experts. But the total number is still small relative to needs. An UNRWA [United Nations Relief and Works Agency] survey of 1954[4] reported that per thousand population there were only one-tenth as many students in vocational, trade, and agricultural schools of the secondary and elementary level in the Arab Near East as in the United States or Western Europe. The disparity is even more marked in agricultural and engineering training at the university level. These facts are pointed out to emphasize why the Arab states have wisely accorded, and should continue to accord, high priority to agricultural and engineering training.

The fourth guideline relates to the need for capital. The development programs mentioned above, particularly those of an infrastructure nature such as highways, irrigation systems, public utilities, educational installations, etc., require

[3] U.N. doc. E/3105/Add. 5.

[4] U.N. doc. A/2717/Rev. 1.

huge amounts of capital. The United Nations *Economic Development in the Middle East, 1956–57* noted that, except for Iraq, all of the Arab Near East countries are short of development capital. This report stated, with respect to the Middle East:

> Expanding national expenditures, public and private, for practically all the countries of the region, seem to have outstripped resources available from domestic sources. . . . The pressure on domestic resources—with the consequent dependence of the region on foreign sources of finance—has arisen not only as a result of conscious collective efforts for economic and social development and for defence, but also because of a comparatively rapid population growth in practically all the countries of the region.

The Middle East oil industry has provided considerable capital that has been used, in greater or lesser degree in the different countries, for developmental purposes. Iraq is an example of a country that has used 70 percent of its total oil revenue for economic development. Direct royalties and tax payments by the oil-producing companies to the Arab governments where the oil is located rose from $141 million in 1950 to $507 million in 1953 to $844 million in 1957.[5]

In addition, substantial payments were made by the producing companies to the oil-transit countries, namely: the United Arab Republic as tolls for oil tankers passing through the Suez Canal (two-thirds of the total traffic through the canal in both directions being oil tankers); to the Syrian province of the U.A.R., Lebanon, and Jordan, as transit fees for the pipelines passing through these countries. The oil companies also provide substantial amounts of foreign exchange to both oil-producing and oil-transit countries of the Arab Near East through the local purchase of labor, supplies, and services. Thus the oil industry is of major significance in future Middle East economic development. The only area of the world that can absorb and thus maintain this tremendous flow of Middle East oil is Western Europe, since the Americas, the U.S.S.R., and Southeast Asia have their own oil production.

However, as the United Nations report pointed out, the Arab states (except Iraq), even with their oil income, are short of capital to accelerate economic development at a rate where production will outstrip the population increase. In this connection, President Eisenhower made certain proposals before the U.N. General Assembly on August 13, 1958, that might make more development capital available to the Arab countries.[6] He proposed:

> That consultations be immediately undertaken by the Secretary-General [of the U.N.] with the Arab nations of the Near East to ascertain whether an agreement can be reached to establish an Arab development institution on a regional basis . . . which would attract international capital, both public and private.
>
> Should the Arab states agree on the usefulness of such a soundly organized regional institution, and should they be prepared to support it with their own resources, the United States would also be prepared to support it.
>
> The institution would be set up to provide loans to the Arab states as well as the technical assistance required in the formulation of development projects.
>
> The institution should be governed by the Arab states themselves.

It would be premature to predict the outcome of these proposals. But one step which may have far-reaching significance has already been taken. Ten Arab states have formulated their own resolution relative to the current Middle East situation,[7] which *inter alia*,

> Invites the Secretary-General to continue his studies now under way and in this context to consult as appropriate with the Arab countries of the Near East with a view to possible assistance regarding an Arab development institution designed to further economic growth in these countries.

This resolution was passed at the U.N. General Assembly by an overwhelming vote of 80 to 0 on August 21, 1958.

Conclusions

The Arab states are now entering the takeoff phase of economic growth.

This stage is one of acute tensions and problems when there is an overwhelming urge among the people for rapid economic development to improve general living conditions.

The capacity of the Arab states to evolve through the takeoff into the full economic maturity will depend upon their ability to accelerate production faster than population and to conduct the process so as to benefit not simply one segment of the population but the majority of the people.

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[5] Includes in 1957: Saudi Arabia $328 million; Kuwait $305 million; Iraq $139 million; Qatar $55 million; Bahrein $10 million; and the Neutral Zone $7 million. [Footnote in original.]

[6] BULLETIN of Sept. 1, 1958, p. 337.

[7] For text, see *ibid.*, Sept. 15, 1958, p. 411.

The guidelines for a constructive development program, include:

1. Expansion of agriculture, by increasing the irrigated area and adopting improved production techniques;

2. Expansion of local industry, particularly those based upon the processing of local raw materials, to achieve a better balanced economy;

3. Expansion of education, particularly agricultural and vocational training, to provide the skilled experts needed in the agricultural and industrial development;

4. Establishment of a financial institution that will obtain, from internal and external sources, the development capital needed to implement these development programs.

The evidence indicates that serious consideration is being given to all of these points in the Arab world today.

The concluding thought that I would leave with the Organization of Arab Students in the United States—you who will be leaders in the economic and social development of your respective countries—is this. The question that ought to be asked regarding each developmental activity is whether or not it will really improve economic and social conditions for the majority of the people or whether it only appears to do so. This is the pragmatic standard against which all developmental activity should be measured if the Arab world is to realize its full economic potential in the years ahead.

U.S. Delegations to International Conferences

ECAFE Working Party on Economic Development and Planning

The Department of State announced on August 28 (press release 500) the designation of Richard M. Alt, Director of Research of the New England Mutual Life Insurance Company, Boston, Mass., as the U.S. delegate to the meeting of the Working Party on Economic Development and Planning of the Economic Commission for Asia and the Far East to be held in Bangkok September 2–13, 1958.

This meeting will bring together economic experts to consider the problem of industrialization and economic development of the member countries located in Asia and the Far East. The meeting will consider, among other subjects: (1) government policies and measures for promoting industrialization within the frame of national economic development plans; (2) criteria for selecting particular industries for establishment or expansion, including the consideration given to economic balance and to international division of labor; (3) problems and experiences relating to the scale of industrial production and to the choice of labor-incentive or capital-incentive processes.

TREATY INFORMATION

U.S. and Denmark Sign Agreement on Compensation for Ships

Press release 498 dated August 28

The United States and Denmark on August 28 concluded an agreement regarding the remaining claims for compensation for 40 Danish ships requisitioned by the United States in 1941 and used during World War II. The agreement was by exchange of notes providing for payment by the U.S. Government to the Danish Government of $5,296,302. Henrik de Kauffmann, the Ambassador of Denmark, signed on behalf of his Government. Christian A. Herter, Acting Secretary of State, signed on behalf of the U.S. Government and made the following statement:

I am indeed pleased that we today have concluded an agreement finally resolving the questions between the Governments of the United States and Denmark regarding compensation for the Danish ships requisitioned by the United States in 1941. I have been able to sign this agreement on behalf of the United States because of the action of this Congress in approving these terms of settlement.[1] In view particularly of the long and complicated history of this matter, I am gratified that the efforts of all who have worked for its solution have had this happy result.

It is especially appropriate that you, Mr. Ambassador, should have participated in the conclusion of this agreement. You concurred in the taking of the ships in 1941

[1] For a statement made by President Eisenhower on approving the legislation authorizing payment to Denmark, see BULLETIN of June 23, 1958, p. 1055; for a statement made by Mr. Herter before the House Committee on Foreign Affairs on May 21, 1957, see *ibid.*, June 24, 1957, p. 1020.

and have since worked continuously to bring about a definitive solution to the problem of compensation.

Together we have today forged another link in the strong chain of United States–Danish cooperation and friendship.

I take great pleasure, Mr. Ambassador, in handing you this check pursuant to the agreement we have just concluded.

The payment of $5,296,302 pursuant to this agreement is for the purpose of bringing compensation for these Danish ships into line with compensation received by American owners. The necessity for such a payment arose from the following succession of circumstances:

Verbal arrangements for the taking of the vessels were made in 1941 by representatives of the Department of State and the Danish Minister (now Ambassador). The United States was not at war at the time and it was considered that the concurrence of the Danish Minister should be obtained. The Minister concurred despite the contrary instructions of the Government of occupied Denmark.

The verbal arrangements regarding the ships were not reduced to writing. It has been confirmed, however, in the official records, primarily the records of the Congress, that an oral understanding was reached whereby the United States for the taking and use of the vessels would pay compensation equivalent to that which American owners would be entitled to for American vessels taken for use. Such compensation would have included charter hire for the vessels while in possession and use by the United States and compensation for title values of those vessels which were lost.

The owners of the ships, through negotiated settlement contracts made in 1946 and two series of suits before the Court of Claims ending in 1952 and 1956 respectively, obtained considerable compensation. This, however, fell short of the amount arrived at by applying the equal treatment-use compensation formula of the original understanding.

The Government of Denmark, upon the failure of the owners to obtain satisfaction through the above local remedies, requested additional payment pursuant to the original understanding. It indicated that it would accept payment of $5.3 million as full and final settlement of the matter. The $5.3 million was arrived at by deducting the amount already paid the owners ($35.4 million) from the total amount ($40.7 million) that they would be entitled to on equal treatment-use compensation basis. This remainder is the amount provided in the agreement.

Current Actions

MULTILATERAL

Atomic Energy

Statute of the International Atomic Energy Agency. Done at New York October 26, 1956. Entered into force July 29, 1957. TIAS 3873.
Ratification deposited: Philippines, September 2, 1958.

BILATERAL

European Atomic Energy Community

Agreement relating to programs for advancement of the peaceful applications of atomic energy. Signed at Brussels May 29 and at Washington June 18, 1958.
Entered into force: August 27, 1958 (date on which each party received from the other written notification that it has complied with statutory and constitutional requirements).

France

Agreement amending the agreement relating to the loan of the small aircraft carrier *Belleau Wood* to France (TIAS 2907, 3509) by providing for an extension of such loan to June 30, 1960. Effected by exchange of notes at Washington August 22 and 26, 1958. Entered into force August 26, 1958.

Norway

Agreement amending annex C of the mutual defense assistance agreement of January 27, 1950 (TIAS 2016). Effected by exchange of notes at Oslo July 25 and August 16, 1958. Entered into force August 16, 1958.

Panama

Agreement extending the agreement of August 5, 1957, authorizing inspection by Panamanian nautical inspectors of vessels of Panamanian registry in the Canal Zone (TIAS 3893). Effected by exchange of notes at Panamá August 5 and 16, 1958. Entered into force August 16, 1958.

Peru

Agreement amending the agricultural commodities agreement of May 2, 1957 (TIAS 3827). Effected by exchange of notes at Lima August 15 and 22, 1958. Entered into force August 22, 1958.

DEPARTMENT AND FOREIGN SERVICE

State Department Establishes Bureau of African Affairs

The Department of State announced on August 20 (press release 478) the establishment of a Bureau of African Affairs. The bureau will be

headed by an Assistant Secretary of State to be appointed by the President pursuant to authorizing legislation recently enacted by the Congress.

The new bureau includes the Office of Northern African Affairs and the Office of Middle and Southern African Affairs, both of which have been transferred from the Bureau of Near Eastern, South Asian and African Affairs.

The former Bureau of Near Eastern, South Asian and African Affairs now becomes the Bureau of Near Eastern and South Asian Affairs, under Assistant Secretary William M. Rountree.

The Bureau of African Affairs is delegated responsibility for the general conduct of foreign relations with the continent of Africa, except for Algeria, which continues within the jurisdiction of the Bureau of European Affairs, and Egypt and the Sudan, which remain with the Bureau of Near Eastern and South Asian Affairs.

Creation of the new bureau constitutes recognition of the greatly increasing importance of the African Continent, which has experienced the birth of four new independent states since January 1, 1956. It is also responsive to a general consensus that a separate Bureau of African Affairs is vital to the efficient conduct of our relations with that continent. The action was made possible by the decision of Congress to authorize the establishment of the additional position of Assistant Secretary and to appropriate the necessary funds.

The evolution of the handling of African affairs within the Department of State has paralleled the political, economic, and social advancement of Africa. Until the last war, all of Africa except Egypt, Ethiopia, and Liberia was the responsibility of the Bureau of European Affairs.

In 1943 a separate Office of African Affairs was organized within the Bureau of Near Eastern, South Asian and African Affairs with responsibility for most of the continent of Africa.

The trend toward a more unified approach to Africa advanced another step late in 1955 when it was decided to transfer responsibility for administering our relations with the Union of South Africa and Madagascar from the Bureau of European Affairs to the Bureau of Near Eastern, South Asian and African Affairs.

In September 1956 the Department of State created the position of Deputy Assistant Secretary for African Affairs within the Bureau of Near Eastern, South Asian and African Affairs and under him two offices, the Office of Northern African Affairs and the Office of Southern African Affairs.[1]

The new bureau will be concerned with U.S. relations with an area comprising approximately 50 different political entities: independent countries, trust territories, and dependencies. The area involved has a total population of about 200 million. At present the United States maintains 7 embassies, 11 consulates general, and 9 consulates in this area. Four of the consular posts were opened during the last fiscal year; six more will be opened in the current fiscal year.

The political entities for which the new Bureau of African Affairs will be responsible include:

Office of Northern African Affairs:

Morocco, Tunisia, Libya, Ethiopia, French Somaliland, British Somaliland, Somalia, and Spanish Sahara (Rio de Oro).

Office of Middle and Southern African Affairs:

Zanzibar, Kenya, Uganda, Tanganyika, Federation of Rhodesia and Nyasaland, Mozambique, Madagascar, Union of South Africa, South West Africa, Bechuanaland, Basutoland, Swaziland, Angola, Belgian Congo, Ruanda-Urundi, French Equatorial Africa, Cameroun, Rio Muni, Nigeria, British Cameroons, Ghana, Togo, Liberia, Sierra Leone, Portuguese Guinea, Spanish Guinea, French West Africa, Gambia, and off-lying islands in the Atlantic and Indian Oceans.

Confirmations

The Senate on August 23 confirmed Joseph C. Satterthwaite to be an Assistant Secretary of State. (For biographic details, see Department of State press release 479 dated August 20.)

Designations

James K. Penfield to be Deputy Assistant Secretary for African Affairs, effective September 21. (For biographic details, see Department of State press release 495 dated August 26.)

Joseph Palmer 2d to be Consul General, with personal rank of Minister, at Salisbury, the Federation of Rhodesia and Nyasaland, effective September 21. (For biographic details, see Department of State press release 494 dated August 26.)

Opening of Consulate at Peshawar, Pakistan

A new consulate at Peshawar, Pakistan, was opened to the public on August 6. The supervisory post for Peshawar is the Consulate General at Lahore, Pakistan. Gordon D. King is the principal officer at the post.

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[1] BULLETIN of Sept. 24, 1956, p. 497.

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No.	Date	Subject
504	9/2	Burns: "Planning Economic Development in the Arab World."
505	9/3	Revisions in the Battle Act lists.
†506	9/3	Delegate to ECE Timber Committee session (rewrite).
*507	9/3	DLF agreement signed with Ceylon.
†508	9/3	Convening of 12th Selection Boards.
*509	9/3	U.S. diplomatic officials in Near East to meet at Athens.
†510	9/4	Herter: "International Politics and the Preservation of Peace."
†511	9/4	Reinhardt: "The Challenge of the Times."
512	9/5	Dulles: 4th anniversary of SEATO.
*513	9/5	DLF loan to Paraguay for Asunción water system.
514	9/5	Visit of Foreign Minister Fujiyama (rewrite).
*515	9/5	Japanese management experts to visit U.S.
*516	9/6	DLF loan to Republic of China for Shihmen dam project.
†517	9/6	Reply to Soviet note on balloons.
†518	9/6	Note to U.S.S.R. on missing U.S. aircraft and crew.

*Not printed.
†Held for a later issue of the BULLETIN.

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